

8: Labor and Human Capital

China's labor force is the biggest in the world: the 770 million workers in China are more than those in all developed countries put together. As China grows and undergoes massive structural change, what those workers do has changed—and is changing—dramatically. Just ten or twenty years ago, workers were often engaged in heavy physical labor, especially in the countryside. It was common to see labor power used for tasks better accomplished by machines, breaking up rocks and digging ditches, men and women carrying 70 or 80 pound loads up and down steep hillsides. These sights have by no means disappeared, and most workers are still engaged in repetitious manual labor, but machinery has taken over many of the back-breaking tasks, and labor is less physically wearing than before. Now this workforce is beginning another wave of rapid change, as education levels are increasing rapidly and white collar and service occupations are increasing sharply.

While this structural change was underway, China has also gone through one of the most colossal social “experiments” in history, with the dissolution of the *danwei* (work unit) system and the creation of labor markets. Under the command economy, there were no labor markets in China. Each worker was simply a lifetime member of either the rural or urban system of public employment (Chapter 5). This system was loosened slightly in the 1980s, and then broke down completely in the 1990s, under the onslaught of two powerful forces. First, the state enterprise system, staggering under the weight of increasing competition and low productivity, was finally re-structured and down-sized. In the second half of the 1990s, China laid off almost 50 million workers, 40% of the public enterprise workforce. Second, the massive influx of less-skilled migrant workers into the cities drove the creation of a completely new set of institutional arrangements. An entirely new “informal” labor market grew from virtually nothing.

Despite the dislocation and inequities in the process, the creation of functioning labor markets was necessary in order to create the foundation for a skilled and prosperous economy. Without such an institutional transformation of labor markets, it would have been impossible for China to carry out the series of structural transformations through which it has passed already, and which confront it today. Today, the system through which the government controlled employment directly has disappeared, and active labor markets have developed nationwide. If labor markets work well, they play a central role in this transformation of labor, and in the whole development process. Working labor markets create jobs that require and reward specific skills and education. Workers have an incentive to get training and education, and businesses have an incentive to seek out and reward the worker with greater talent or training.

Today a further wave of fundamental change is again reshaping labor markets. Rapid growth of the economy—and in the demand for labor—has begun to push up wages for unskilled workers across the board, just as the growth in the supply of unskilled workers has now begun to taper off. This development has led many observers to argue that Chinese growth has now exhausted the pool of under-employed labor in the countryside, and that China is now at the “Lewis turning point,” after which wages begin to rise across-the-board in a developing economy. While not all economists accept the existence of a “Lewis turning point,” the issues involved in this discussion capture the main changes and challenges faced by the Chinese economy today. The Lewis turning point is a means to understand the new opportunities and challenges China faces as it turns into a middle income economy.

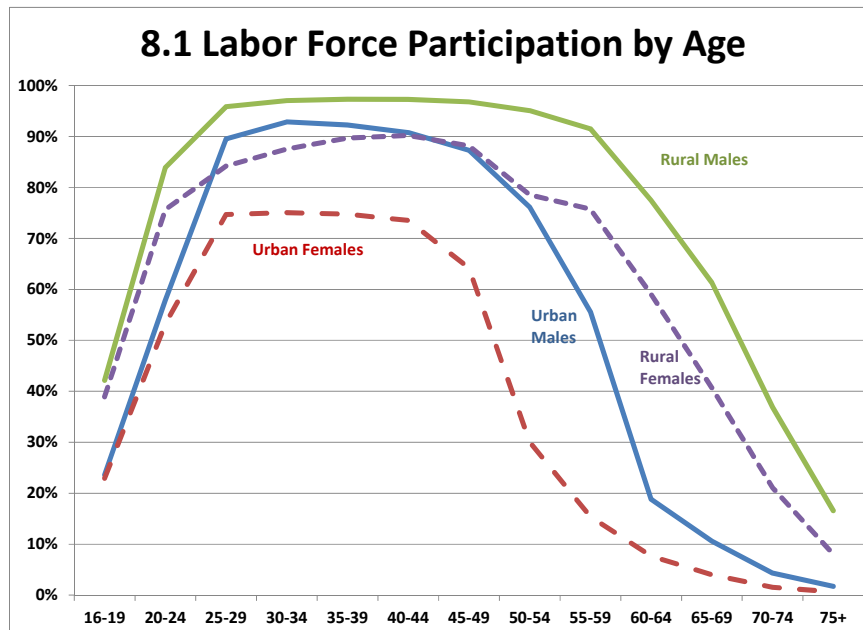
The first part of this chapter examines the institutional changes in the labor system over the past decades. It begins with snapshots of employment in 1978 and in 2013 that serve as the basis for a discussion of the transformation of the urban state sector during 1995-2000, during which mass lay-offs led to the emergence of both labor mobility and significant open unemployment. The second part of the chapter examines the functioning of labor markets. How well do labor markets reward productive attributes like education and experience? Recent work examining returns to human capital and migration is discussed. Progress in raising educational standards in the labor market is considered. This discussion leads to the question of segmented labor markets in the urban economy today. The chapter concludes by directly addressing the question of the Lewis Turning Point, and trends in skilled and unskilled wages.

8.1 The Chinese Labor Force Today

China’s dynamic work force is a major source of comparative advantage. China’s labor force is young, with a low dependency rate and a high labor force participation rate for both genders. Moreover, today China’s workers are employed in a diverse set of institutional arrangements, imparting substantial flexibility to the labor economy. As a following section will show, the labor force is also rapidly upskilling. These conditions have contributed to China’s “miracle growth” phase over the past twenty years, but will make much less contribution in the future as the labor force and population age.

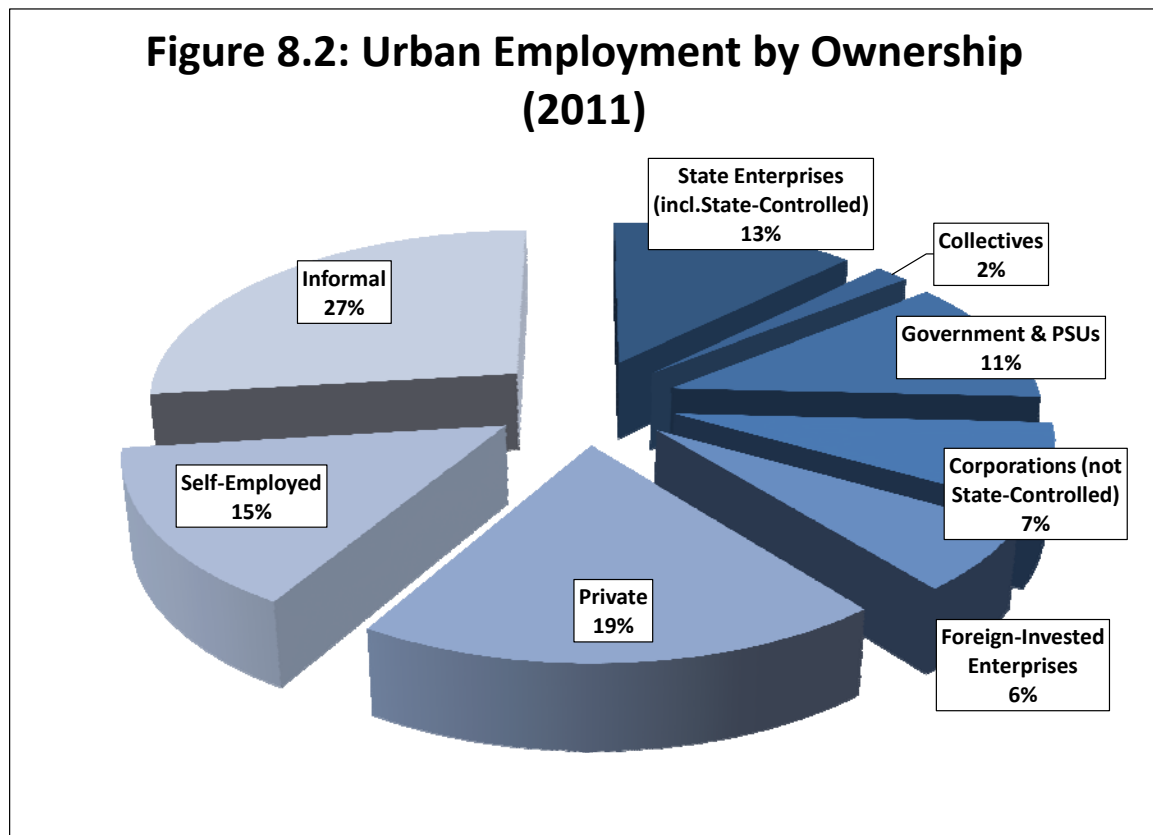
Since much attention has been given to China’s future aging problem, it is worth stressing that China’s workforce today is quite young, particularly in urban areas. Back in 1978, the average age of all employed people (urban and rural together) was only 31, and this has increased to 39 in 2010. However, the urban workforce is considerably younger, because it is continuously replenished by new migrants from the countryside, who are predominantly young, and because urban workers retire early. The average age

of city workers is only 36, six years younger than 42-year-old average US worker in 2012. Moreover, in the urban population there are only 31 dependents (young and old) per 100 working-age population, compared to 52 per 100 in the countryside (Census Office 2014: 46). This makes for an extremely adaptable urban labor force, and reminds us that although China has already reaped most of the gains from the “demographic dividend,” there is no sudden “loss” of the benefits of a young, adaptable workforce with a low dependency ratio. Instead, only gradually does the workforce age and, then, as workers retire, the dependency rate increases.



Labor force participation is high, as Figure 8.1 shows. Both men and women have high labor force participation rates during their peak working years, ranging from 97% for rural men to 75% for urban women. Reflecting the expansion of higher education, only half of urban males and females are in the labor force in their early 20s. Labor force participation on average comes at 22. By contrast, most rural people are in the labor force by 19. What is particularly striking is how young labor force participation drops off in urban areas, particularly for women. During the down-sizing of state enterprises at the end of the 1990s, many redundant state firm workers took early retirement, and a norm of early retirement became established in the cities. Most urban women leave the labor force in their early 50s, even before the statutory retirement age of 55. Few urban males work much past 60. Early retirement, alongside in-migration by the young, keeps the urban labor force young. In the countryside, there is still really no retirement, and most men are still at work in their late 60s. Early retirement must be considered in the context of the long hours put in by those at work. The average workweek was 45 hours in 2010, and 38% of workers put in more than 48 hours a week. Not surprisingly, these workers generally feel they have earned early retirement.

Urban employment is now diversified among ownership forms and types of occupation. Figure 8.2 shows 2011 urban employment by main components. One way to group those would be into three parts: public sector, formal private sector, and informal sector. The public sector accounts for a quarter of urban employment—this includes government, PSUs, and all publicly-owned enterprises. The formal, large-scale private business sector accounts for 32% of employment. This includes registered private firms, domestic corporations *not* government-controlled, and foreign-invested firms (including those headquartered in Hong Kong and Taiwan). The “informal sector,” composed of self-employed and unregistered businesses together accounted for 42%. After 2012, the government engaged in an intensive effort to make it easier for businesses to register, resulting in some changes in classification, and a rapid shrinkage of apparent informal sector employment.



8.2 The Institutional Transformation of Chinese Labor

How did today's workforce and labor institutions develop? In 1978, China's workers were organized into a labor system completely different from that which exists today. At that time, ninety-nine percent of China's workers were in publicly-owned

undertakings, two-thirds in agriculture, and one-third in everything else. In urban areas, the entire labor force was organized either into state-run units or into urban collectives. A tiny handful of self-employed tradespeople (150,000), mostly elderly traders or repairmen, had somehow managed to stay independent through thirty years of socialist mobilization. Crucially, there was essentially no labor mobility in this system. Chapter 5 described how tight controls had been placed on rural to urban migration in the 1960s after the collapse of the Great Leap Forward, and urban residence had become a privileged status. Mobility of all kinds, including job mobility, declined sharply. The government assumed direct control over all urban hiring: From the early 1960s onward, the government assigned 95% of high school or college graduates to work, and did not allow enterprises to make hire or fire decisions on their own (Bian 1994). The state decided your job, and a job was for life. Workers could not be fired, but they couldn't quit either. In 1978, 37,000 workers in all of urban China quit or were fired, about one-twentieth of one percent of all permanent workers.

It is important to note that this was not just "socialism," it was a particular Chinese version of socialism. In the Soviet Union, manual workers were rarely fired but were free to quit, and often did so. The rate of voluntary job turnover was more than two hundred times that in China.¹ The extreme rigidity of the urban labor market was a particular Chinese adaptation to the conditions that grew out of the Great Leap Forward and Cultural Revolution. When economic transition began, after 1978, this rigidity was seen as a severe handicap that slowed progress in gradualist reforms and hampered the introduction of market forces.

On the one hand, the entire urban social system was built around the workplace, so loss of a job also meant loss of a bundle of services and access to the social safety net. In this sense, job losses could undermine the implicit social contract that tied urban dwellers to the political system, and make a mockery of the Communist Party claim to speak for the working class. Furthermore, policy-makers constantly pointed to China's surplus labor as a burden that forced them to proceed cautiously in economic reform. They continued to tolerate make-work jobs, and even created millions more to accommodate sent-down youth who returned to the cities from 1978 to 1980. Reformers routinely ruled out dramatic measures that might increase productivity rapidly at the cost of sharp short-run increases in unemployment. On the other hand, China's fundamental comparative advantage lay in its abundant low-cost labor, which it could only bring into play if labor could be used efficiently; China's return to world markets depended on its ability to quickly scale up labor-intensive manufacturing. Meanwhile, China's state-

¹ According to Granick (1987:109), 16% of Russian industrial workers quit in 1978, compared to .06% of Chinese workers quit and fired in that year.

owned enterprises were grossly over-staffed and could improve efficiency only by shedding labor. Thus, the creation of labor markets was one of the most important tasks of reformers, but also the most sensitive.

As a result, change was slow. Some flexibility was built in on the margins of the system, through a system of renewable five year contracts, for example. Overall, though, total state employment—including state enterprises, public-service units (PSUs) and government jobs—actually *increased* from 75 million in 1978 to 112 million in 1996. In 1996, *eighteen years* after reforms began, state employment still accounted for the bulk of urban employment, and the features of the first phase of China's gradualist transition strategy were very much in evidence: publicly owned enterprises generated much of the increased employment and output in the economy; reform was “without losers,” as state jobs were protected; and marketization began with product markets and only slowly extended to labor markets.

Starting in the mid-1990s, this whole institutional set-up changed dramatically. State-owned enterprises, under increasing competitive pressure, began laying off redundant workers. Figure 4-4 in Chapter Four showed the dramatic decline in state enterprise workers after 1996. In fact, all the major public ownership forms shrank significantly after the late 1990s: putting together employment in government, PSUs, state enterprises and state-controlled corporations, urban collectives, and publicly-owned township and village enterprises: these shrank from 31% to just over 14% of the total (urban and rural) labor force over seven years (1996-2003). If anything in China's transition counts as a “big bang,” this was it: the rapid increase in involuntary layoffs from state firms led to a dramatic increase in labor mobility. After this “bang,” public enterprise employment stabilized in absolute terms. The economy continued to grow, though, so the share of public employment in total employment continued to decline, but much more slowly after 2003.

8.1.3. The Great Transformation: State Sector Down-sizing

The broad policy governing state sector down-sizing was “grasp the large, let the small go,” (*zhuada fangxiao*: see Chapter 13). In practice, that meant that the central government directly managed the restructuring of several hundred large state firms, but left decision-making about the tens of thousands of medium and small-sized firms at the local level. Local decision-makers, comprising enterprise managers, immediate government supervisors, and local mayors and governors had to respond to competitive pressures, massive losses, and (potentially) the opportunities for privatization. Not

surprisingly, the process was a decentralized, uncoordinated, and sometimes chaotic. Yet at the same time, the handling of the large number of laid-off SOE workers was a massive attempt at social engineering. Substantial cost and effort were expended to buffer SOE workers from the immediate shock of unemployment; despite this help, laid-off workers experienced dramatic reductions in their income and standard of living (Appleton *et al* 2002; Cai, Giles and Park 2006).

The process began with the creation of new categories of workers within the enterprise: the “surplus worker,” and subsequently, the “off post” or “laid off” (*xiagang*) worker. Enterprises were told to identify surplus workers and organize them into new units with new activities (sometimes make-work). Then these workers were gradually discharged from the work unit, and transferred to the jurisdiction of newly created re-employment centers (REC). The RECs were designed to provide retraining and job search assistance. Perhaps more crucially, the REC took over the worker’s affiliation from the enterprise, paid into the worker’s social security and welfare funds, and typically provided a stipend to the worker and some benefits (especially housing and health insurance) provided through their work unit. Workers were supposed to remain affiliated with the Re-employment Center for a maximum of three years, or less if they could find a new job more quickly. In a prosperous city like Shanghai or Beijing, this system meant that a redundant worker could receive as much as five years of transitional assistance and support as he or she was gradually eased out of state employment. Less prosperous cities, however, were not usually able to maintain a high standard of support. The Chinese government made an effort to buffer the shock of a massive and traumatic change, but actual outcomes varied, and in some places there was widespread hardship.

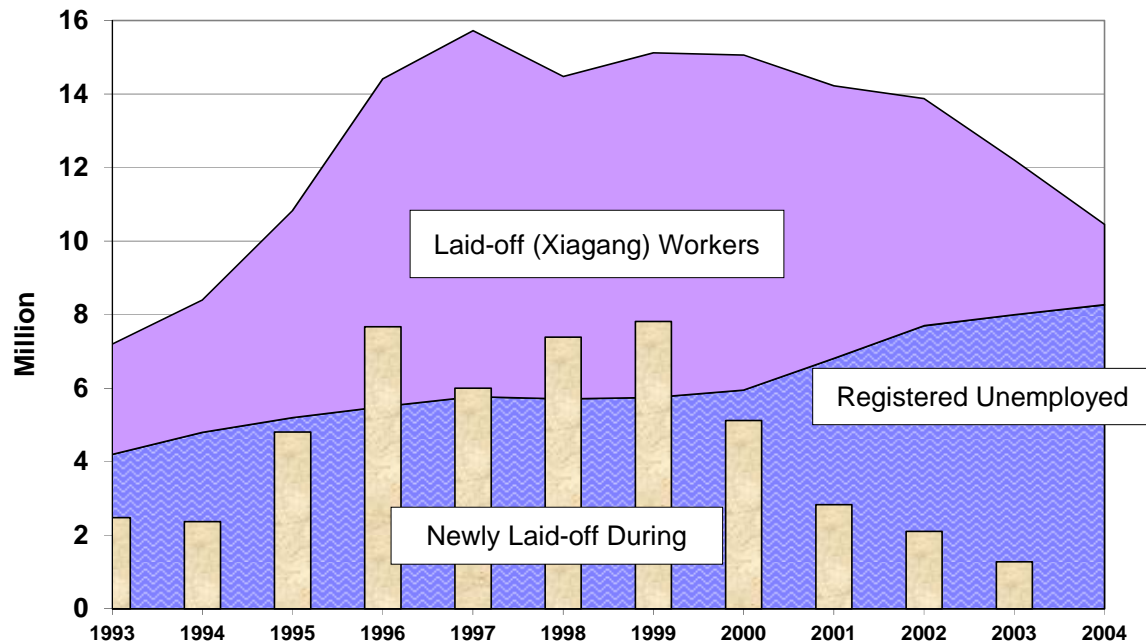
Figure 8-2: Laid-off and Unemployed Workers

Figure 8.3 lays out the broad patterns of change that led to almost 50 million people losing jobs in state and urban collective enterprises. The vertical bars show the number of enterprise workers laid off in the course of each year (official data from 1997; estimate data through 1996). Chinese media sometimes refer to 28 million laid off state enterprise workers: in fact, this is a lower bound, because it was not until 1998 that the diverse local data were unified into a logically consistent category of laid-off workers (*Labor and Social Security Yearbook* 2004, 478). After 1998, the Chinese government created a new Ministry of Labor and Social Security and launched a massive effort to collect data, systematize procedures, and channel laid-off workers into RECs. That information can be used to estimate lay-offs from earlier years; in addition, lay-offs from urban collective firms were proportionally even larger (and their severance pay less generous). Lay-offs averaged 7.2 million per year for the four years 1996 through 1999, then easing off to 5 million in 2000, and below 3 million in 2001. In total, just shy of 50 million workers were laid off between 1993 and 2003 from SOEs, urban collective enterprises, and public-service undertakings. The year 2003 was the final year for mass lay-offs, and after that public enterprise employment stabilized.

8.1.3 Unemployment

The layoffs in the years 1993-2003 led to a serious problem of open unemployment. It was not the only episode of unemployment in the People's Republic: in the 1950s, China had struggled to find work for all, and again in 1978-80, when sent-down youths returned to the city and needed work, open unemployment had been a

serious issue. However, most of the time, open urban unemployment had not been a serious issue. By preventing rural residents from coming to the city, China had effectively exported the employment problem from the cities, creating chronic underemployment and hidden unemployment among the agricultural collectives. In the cities, however, a steadily growing economy brought nearly all women into the workplace, and ensured a generally low unemployment rate. This changed dramatically in the late 1990s. The colored area in Figure 8.2 shows the stock of unemployed workers during the years 1993-2004, in two categories. Chinese statisticians were careful to keep the newly “laid-off” workers in a different category from “unemployed” workers. (In China, official unemployment figures only described individuals with urban household residence permits who have registered as “unemployed and looking for work” with the local labor bureau. Rural-urban migrants are never counted as unemployed, nor are they included in the denominator when unemployment rates are computed.) Only when these two categories of idle workers are added together give a reasonably accurate count of China’s urban unemployed. By this measure, the total number of urban unemployed reached a peak of almost 16 million in 1997, and stayed elevated for five years, just slipping below 14 million in 2002. Thus, China’s urban unemployment rate peaked at 10% of urban workers (with urban residence permits), and stayed above 8% for about five years. For an urban population accustomed to full employment, this was a big shock.

In some regions of China, unemployment became a major social issue. The treatment of laid-off workers varied substantially from place to place, because local governments were responsible for labor market policies and faced very different economic conditions. In the far northeastern province of Heilongjiang, with a stagnant economy and a legacy of huge and uncompetitive heavy industrial plants, unemployment was high and the RECs provided stipends to laid-off workers equal to only 6% of the average SOE wage in 1997, compared with 43% in Shanghai. Far from being able to provide additional billions to encourage early retirements, Heilongjiang was not even able to meet its existing pension obligations and was in arrears of its pension obligations by over one billion RMB in 1997, with half a million SOE retirees going unpaid (Mo Rong 1998). Not surprisingly, large-scale protests erupted in Heilongjiang and occasionally turned violent. Eventually the central government was forced to step in and assume some of Heilongjiang’s pension obligations. Most cities in China were in between the Shanghai and Heilongjiang extremes.

After 2003, China’s accelerating economy began to mop up the urban unemployed. In 2005, those laid-off workers who still had not found work were streamed back into the official unemployed category, giving a total of 8.4 million unemployed, 4.2% of the urban work force with residence permits. To be sure, millions of workers who took early retirement either stayed out of the work force altogether, or took

casual jobs in the informal sector. After that the unemployment challenge became less critical: even in the face of the global financial crisis in 2009, the increase in registered urban unemployment was moderate, to 9.2 million, or 4.3% of a substantially larger workforce. The influx of migrant workers provided urban labor markets with a new adjustment mechanism—when the economy slows, migrant workers are the first to feel the brunt and the jobs of formal urban employees have a degree of protection. Moreover, since about 2004, the growth in demand for unskilled workers has tended to outstrip the increased supply. Both these changes have helped keep registered urban unemployment low. (Both are discussed later in this chapter.)

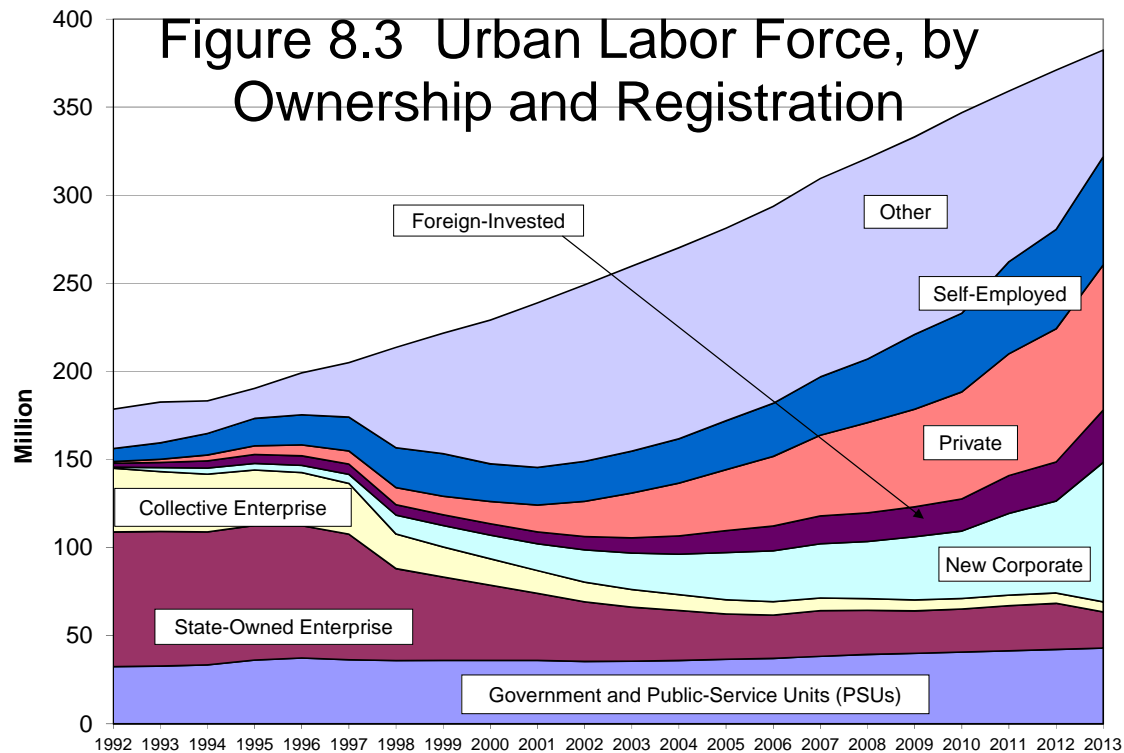
8.1.4 Inflow of Migrant Workers.

As Chapter 5 showed, rural migrants began to flood into the city, with the pace accelerating during the 2000s. At first, migrant workers simply filled vacant niches in the urban economy, as peddlers and food-sellers. However, as the urban economy grew and demand expanded, migrants began doing more and more jobs. It is common to characterize these jobs as “unskilled,” but we must be careful. By “unskilled” we increasingly mean “without much formal education.” Today young urban-to-rural migrants in China are universally literate, and many of these “unskilled” use computers and smartphones. Moreover, they have aspirations that are completely different from the “unskilled migrants” of twenty or thirty years ago. Migrants find employment through an enormous range of occupational arrangements: there is great diversity. Self-employment and wage labor in small-scale services, restaurants, and retail provides a big part of the urban demand for rural migrants. Construction is also a major employer. At the same time, millions of workers work in large labor-intensive factories. In the most extreme case, there are 230,000 workers at the Foxconn complex in Longhua, Shenzhen. About 90% of these workers are young female migrants from the countryside, about a quarter of whom live in dormitories provided on site by Foxconn. These jobs have in common the fact that it is possible to show up one day and be working the next day. There are vigorous spot markets for workers. This doesn’t mean that workers in the informal sector always find work on their own: there are important market intermediaries who facilitate employment. These include government-run employment centers, labor “gang” leaders who recruit construction teams, and roving employment agents for big factories. These markets seem to be characterized by a great diversity of forms, high fluidity, and rapid turnover. Thus, there is now a division within the urban labor force that, to some extent, mirrors and replaces the old division between urban and rural workers. The overall contours of this development can be seen from the aggregate numbers on urban employment. Although those numbers are not very accurate in their coverage of the informal sector, they still provide a clear picture of the emerging reality.

8.1.5 Snap-shot of Urban Labor Markets: Segmented Markets

Figure 8-3 shows the evolution of urban employment according to official data. Quite a few striking trends emerge: the absolute number of government employees and workers in public service units (PSUs: *shiye danwei*) have hardly changed, growing slowly but steadily over the last decade. State and collective enterprises shrank dramatically, while a group here labeled “new corporate” has increased. These new corporate forms include modern limited-liability and joint-stock companies, as well as a few other idiosyncratic transitional forms. The government has a controlling stake in many of the larger of these “new corporate” firms. Thus, in 2011, of a total of 46 million workers in this category, 20 million worked in firms controlled by the government.

As a first approximation, it makes sense to group all these new corporate forms, along with state and collective enterprises, government employees, and urban foreign invested firms into a single large-scale government and corporate sector, which for convenience we call the urban formal sector. (This category excludes registered private firms, most of which are small. While some privately-owned firms are large, these would most likely be registered as limited liability corporations, in which case they would be included in the “new corporate” employment.) The urban formal sector, in this definition, declined from 152 million in 1996 to only 105.5 million in 2003, in the wake of the state sector downsizing described above. However, since 2003, employment in this sector has increased again, reaching 149 million in 2012. Even after a decade of growth, though, the formal urban sector had fewer employees than on the eve of state sector down-sizing.



This means that the bulk of the growth in the urban labor market—which expanded from 200 to 371 million between 1996 and 2012—has occurred in the private, self-employed, and “other” categories. “Other” employment simply represents workers known to exist because surveys and census investigations reveal the size of the overall urban workforce, but who are not enumerated in any of the registered organizational forms. This category picks up most of the migrants and informal sector workers. The total size of the informal sector—private, self-employed, and other—at about 160 million, quickly surpassed the urban formal sector, and by 2012 had grown to over 220 million. Since 2009, the National Bureau of Statistics has published data on average wages in this sector (which it calls “private”) and the organized corporate and governmental sector (which it calls “non-private”). In 2010, the average “private” wage of 20,759 yuan per year was 56% of the average “non-private” wage of 37,147 yuan. Manufacturing and construction make up 45% of the sampled private labor force.

Migrants and urban dwellers now compete in at least some labor markets that are part of this rapidly growing small-scale informal sector. Migrants dominate certain job sectors—such as construction and textile mills—where labor is particularly tiring or boring and urban workers lack interest. In these areas, firms prefer to hire rural migrants, who are much cheaper and have a reputation as harder workers (Urban Labor 1998). However, in certain sectors, such as retailing, restaurants, and petty trade, migrants and city dwellers compete to a certain extent: laid-off urban workers often tried to supplement their stipends by working in informal jobs. In general, though, urban

residents with urban household registrations prefer white-collar occupations where the work is less tiring and dirty, and which utilize their educational skills. Meng, Shen and Xue (2013) find that of urban workers with urban household registration, 45% were in clerical or service positions in 2009, and only 27% were production workers, reversing the proportions of a decade earlier. Thus, a segmented labor market has emerged in cities that to a certain extent reproduces the old urban-rural divide. Labor market segmentation is discussed further in Section 8.4.

Since 2012, the Chinese government has been pushing to incorporate more of the urban economy into the “formal” regulatory system. Since 2013, it has made registration requirements less burdensome, and thus combined increased pressure to register with a lowered cost to register. As a result, the line between formal and informal may be changing. Figure 8.3 shows a sharp spike in both new corporate and private firm employment in 2013. The changing composition of employment also changes the relation between formal and informal wages: In 2013, the average “private” wage was up to 64% of the average “non-private” wage. This may reflect real changes in comparative supply and demand for workers, or it may simply reflect the incorporation into the formal sector of a larger number of firms in low-wage sectors. Change in urban labor markets has been dramatic. However, in some senses, change has been less than it appears. On the one hand, many permanent urban residents continued to have somewhat protected jobs in the formal sector; on the other hand, a massive flood of new migrants populated the informal sector.

8.1.6 Rural Labor Markets

Rural labor markets are also changing rapidly. Of course, the majority of rural workers continue to be employed on family farms. However, China’s rural labor markets showed a dramatic expansion in non-agricultural employment through the 1990s. According to one large survey (de Brauw *et al* 2002), the proportion of individuals having some off-farm employment increased dramatically, rising from 15% of the labor force in 1982, to 32% in 1995, and further to 43% in 2000. These trends are changing China’s countryside. Most dramatically, by 2000, 76% of the 16-20 age group had some kind of off-farm work, and less than a quarter of those working off-farm had spent any time in agriculture at all. A generation of rural residents is leaving the land, and the process appears to be accelerating in the decade after 2000.

There is a wide variety of off-farm job choices available to rural residents today. In some regions, farmers may create a non-agricultural business while living at home, or commute to a job in a rural enterprise in a near-by town. To simplify, we can group rural worker choices into three categories: continue to farm; leave the farm and undertake local non-agricultural labor (wage labor or start a business); or migrate away from the locality.

Both of these latter two options have increased in popularity. Indeed, the share of off-farm workers who were migrants out of the village began to increase rapidly around 1990, and by 2000, about as many off-farm workers were migrants as were local, with slightly over 20% of the total rural labor force falling into each category. Even among the long-distance migrants enumerated in the census (Chapter 5), almost a quarter had relocated to other rural areas, either to work in agriculture or in rural enterprises. Diverse rural labor markets provide an alternative to urban migration

8.2 How well do Labor Markets Function in China Today?

Labor market institutions have changed dramatically in China. How well do they function today? What attributes do they reward? Labor markets are a very particular type of market, since they must match not just individuals and job slots, but also specific skills and capabilities with the needs of specific positions. “Friction” is uniquely high in this market, since people make decisions about acquiring skills, gaining experience and bearing risk based on very incomplete information and with long time lags. Over time, some formal skills are honed by practice, and become even more valuable, while other skills obsolesce quickly in the face of changing circumstances. Moreover, changing jobs is very costly—because it is risky and involves abandoning job-specific human capital—so “transaction costs” in the market are high. Labor markets thus violate the simplifying assumption that economists often make about market transactions, namely that market decisions are made with full information and zero transaction costs.

Yet if labor markets are uniquely noisy, they are also uniquely powerful. Labor market decisions affect an individual through her life, and the decisions directly affect her quality of life. Moreover, because careers are cumulative, building upon early achievements, labor market conditions early in an individual’s career have an impact on her progress and income throughout her working life. Even when their operation is less than transparent; even when we are unaware of them; labor markets are usually at work and have a powerful impact on our lives. In this context, China presents a remarkable test case. China went from having essentially no labor market to having robust labor markets within the space of about 25 years. How did this dramatic institutional change affect labor market outcomes?

8.2.1 Mincer Wage Models

An efficient labor market rewards a more productive worker. However, productivity is almost never directly observable. An individual will be more productive to the extent that he is adaptive, clever and cooperative, qualities that cannot be directly measured and sometimes cannot even be clearly perceived by outsiders. However, even allowing for the importance of these unobservable traits, we can gain a great deal of

understanding about labor markets by measuring the importance of various observable traits. The most important analytic tool for doing this is the “Mincerian wage regression,” named for the economist Jacob Mincer, who pioneered the approach. For a large cross-section of individuals, Mincer regressed wages on a set of explanatory variables including years of education. The Mincerian return to education was the coefficient on the worker’s years of education. (Using data from the 1950 and 1960 censuses, Mincer found that an additional year of education increased the wage of a US worker by between five and ten percent) The same approach can be used to investigate the value of other attributes, including seniority, gender, and on-the-job training.

The Mincerian model has simplicity and explanatory power. Large data sets can be brought to bear relatively easily. Moreover, data from various sources, including household surveys, can be used, so issues of selection bias and possibilities of intentional distortion of official data can be identified and avoided, which are particularly important in the Chinese context. Finally, Mincerian models have been estimated for a large number of economies, with stable and surprisingly consistent results. We will use the Mincerian relationship extensively in this and the next chapter, for three purposes: (1) to provide information about market institutions and their outcomes; (2) to shed light on the incentives the labor markets provide to individuals, particularly on their decision to invest in those attributes with the highest return; and (3) to analyze the determinants of income distribution and inequality.

The biggest challenge in using a Mincerian model is in interpreting coefficients, given that the observable attribute may often signal the presence of some unobservable individual characteristics. For example, in the case of education, we may be estimating the value of a signal that indicates innate intelligence, rather than the return to investing in education. These issues need to be kept in mind in the subsequent discussion. However, the approach retains its value even allowing for some variability in interpretation. In this section, we examine the evidence with respect to returns to education, and then briefly examine three other attributes that might be related to worker productivity: experience, Communist Party membership, and gender.

8.2.2 Returns to Education: the Knowledge Premium

The socialist system provided basic education to the population at public expense, and spread literacy and basic industrial skills in the population. However, that system did a very poor job of rewarding individuals who had attained higher levels of skills or education. When researchers began to study the determinants of urban incomes in China at the end of the planned economy period (in the late 1970s and early 1980s), they found that incomes were not consistently higher among individuals with more education. Other correlates of higher income were significant: Communist party membership, being male,

and having more seniority on the job, all were associated with higher incomes. But education did not significantly increase income. The private return to education was very close to zero.

This result revealed how inconsistent China's system was at that time with a fully functioning market economy. Perhaps the most fundamental requirement of a well-functioning market economy is that an individual is able to feel secure she will be able to reap the income created by an investment she makes, so long as that investment succeeds in creating new output and income. Investment in education—in human capital—increases the overall productivity of the economy. For a market economy to function, an investment that an individual makes that increases social productivity must also provide an individual reward to the individual. Only in that case will individuals have the incentives to make socially productive investments. Since education is expensive, it is unlikely that the government could bear the whole cost, even if it wanted to; individual households will inevitably bear a substantial part of the cost of education. Thus, a positive and significant private return to education is essential for the continued healthy investment necessary for a more productive economy. The return to education is also a useful index of the extent to which labor markets have developed, and are able to provide adequate rewards to those who invest in human capital.

An extensive literature has examined the changing returns to education in urban China. A consistent result has emerged from this literature that the rate of return to education began to climb in the early 1990s, and sustained an important increase through the next decade. Zhang Junsen *et al* (2005) trace the return to education in urban China from 1988 through 2001, using annual data; and Ge and Yang (Figure 4) update the results through 2007. Ge and Yang show that in the late 1980s and early 1990s, an urban worker would improve his income by less than 4% per year for each additional year of schooling he completed. This was far below the US level of 9%, at that time. Beginning in the early 1990s, the measured return to education began a sustained rise to slightly over 11% per year, converging with the US (which also increased, but much more modestly to 11% by the turn of the century.) Note that returns to education are not necessarily higher in developed countries: in poor countries, education is more scarce, so there are reasons to expect it to be more valuable. Indeed, in their survey of a large number of country studies, Psacharopoulos and Patrinos (2002) found the country study average return to a year of schooling was 9.7%, and was systematically higher in low income countries (10.9%). In any case, from about 2000, China's measured rate of return was close to 10%, near world averages. Meng (2012) reports a decline in the rate of return in 2008-9, which may be due to the large number of new college graduates entering labor markets. However, Hu and Hibel (2014) found that returns to a college degree were higher in 2010 than in 2003.

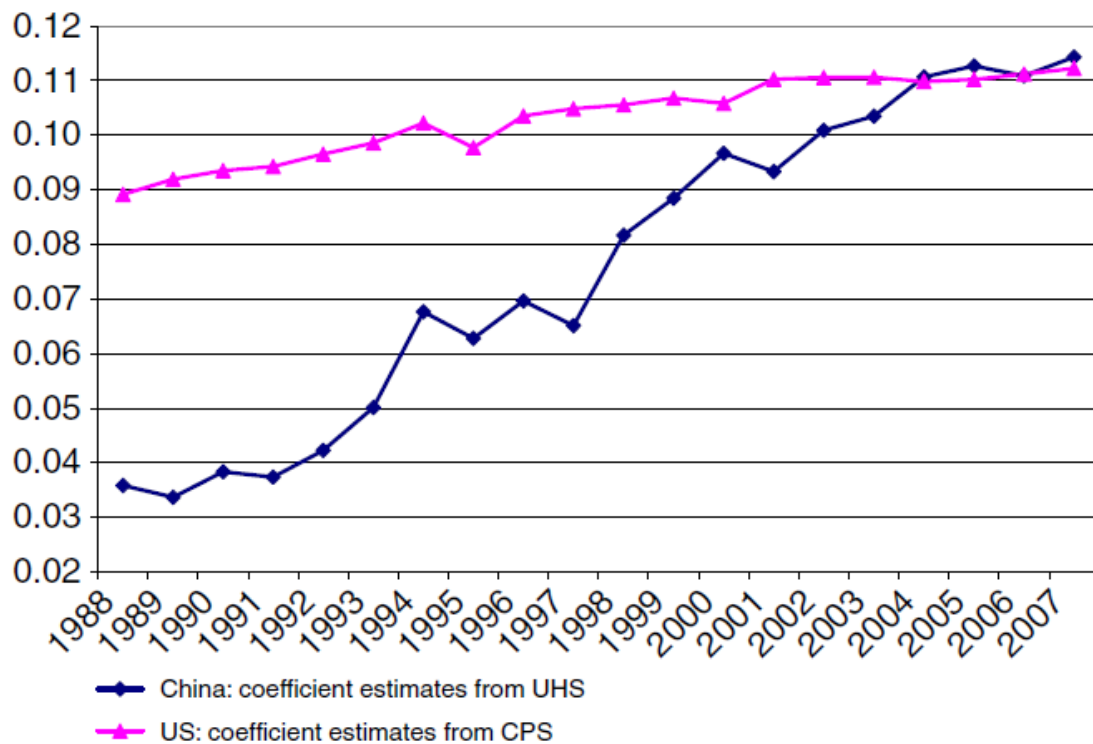


Fig. 4. Rates of return to education in urban China and U.S. 1988–2007.

In China, as in other economies, some of the estimated return to education is in fact a function of signaling of innate abilities. Appleton *et al* (2005) exploit an especially rich data set that covers urban incomes in four benchmark years from 1988 to 2002. They find that the return to education estimated in cross-section increased from 3.6% in 1988 to 7.5% in 2002, roughly consistent with the results of Zhang Junsen *et al*. With their (panel) data set they are able to control for unobserved individual attributes (fixed effects) and occupational effects, which lowers the measured return to education. Li, Liu and Zhang (2012) go further by using a dataset of several hundred sets of twins to control for unobserved attributes (since twins share family background and their native intelligence is highly correlated). They find that accounting for common fixed effects between twin pairs, the return to a year of education declines from 8.4% to 3.8%. They argue that in China secondary education in particular has a rote-learning, exam orientation that serves to select individuals for college, rather than actually improve productivity. By contrast, university and vocational education both appear to serve a productivity-enhancing purpose.

What do these data show? In the first place, the results are consistent with increasingly competitive labor markets. They show Chinese labor markets overcoming an obvious distortion in their functioning that was bequeathed to them by the planned

economy era. How did this dramatic change take place? First, during the 1990s, new higher income jobs became available for the most educated workers. For example, it is widely accepted that foreign-invested firms are bidding up the wages of educated urban workers. A wide range of skills—including management and English language—are considered valuable by foreign-invested firms, and their bids put upward pressure on the wages of more educated workers. During the same period, the “iron rice bowl” was broken; the secure and stable income previously available to everyone was lost, and less educated workers were significantly more likely to be laid off, with drastic reductions in income following. In one important study, each year of education was found to reduce the likelihood of being laid off by one percentage point (Appleton *et al* 2002). Thus, layoffs put downward pressure on the income of less educated workers. Overall, the increase in the return to education provides incentives for individuals to invest in their own human capital, and contribute substantially to the accumulation of skills necessary to the economy. Note that the increase in the return to education, in itself, does *not* indicate that the supply of educated workers is increasing; in the market for skill, as in any other market, an increase in supply would be expected to reduce the equilibrium price. The increasing knowledge premium thus either indicates an increase in the *demand* for skill, as China moves toward an increasingly skill-intensive economy, or more fundamentally, a development of market institutions that allows specific skills to be matched to the needs for them, and the owners of these skills to be appropriately compensated.

8.2.2 Returns to Other Attributes

While education is *prima facie* productive, the impact of other worker characteristics are more ambiguous. Work experience—virtually identical to age in China—was amply rewarded in socialist China, in what was essentially a seniority wage system. During the reform era, the returns to experience have declined moderately, but have not disappeared (Appleton *et al* 2005; Zhang Junsen *et al* 2005; Zhou Xueguang 2000). This change seems consistent with greater market competition: on the one hand, skills acquired by young people have become more valuable, and some of the on-the-job experience of older people has become obsolete; on the other hand, expertise and productivity do still increase with years on the job. Meng (2012) shows the returns to job tenure declining in absolute size and peaking earlier (at twenty years of experience rather than thirty). Age and experience are less rewarded in a dynamic and changing technological and market environment.

In socialist China, membership in the Communist Party was rewarded with a significant income differential. Just as it was natural to anticipate that marketization would bring an increase in the return to education, it also seemed natural to most analysts that marketization would bring about a decrease in the return to Communist Party

membership. In fact, this has not happened. Both Appleton *et al* 2005 and Zhou Xueguang 2000 find that returns to Party membership actually increased during the reform era. According to Appleton *et al*, the premium increased from 7% to 20% between 1988 and 1999, before falling back slightly in 2002. Does this result indicate that Communist Party members have all along had knowledge and skills which have become more valuable during the era of marketization? Again, interpretation of the result depends on the mix between signaling and enhanced income-earning capacity *caused* by Party membership. The Communist Party carries out a demanding selection process, and intentionally tries to select elite individuals (the “Three Represents”). In another twin study, Li et al (2007) find a return to Party membership of 10% disappears entirely when twin fixed effects are taken into consideration. Either the Party provides valuable economic opportunities for its members, or it recognizes intrinsic characteristics which are correlated with superior income earning capability. In either case, it shows that China’s Communist Party continues to have economic significance for individual Party members.

During the socialist period, gender gaps in wages were relatively modest. Although women were not strongly represented in the ranks of top management, the system was one of “equal pay for equal work.” Appleton *et al* find that the gender gap—the difference of male and female wages for comparable levels of experience and education—increased from 12% in 1988, to 22% in 1999, before falling back to 19% in 2002 (compared to 25% in the US in 2000). Numerous studies have shown variations on this pattern. Meng (2012) shows the gender gap increasing from 8% in 1988 to 23% in 2007. To the extent that the gender gap results from discrimination, it represents a failure of the competitive marketplace. It has been shown that women were more likely than men to be laid off from state firms during their restructuring. On the other side, women enjoy a slightly higher skill premium than men. This may reflect the possibility that gender discrimination is stronger in low-skill occupations, and diminishes in relative terms as better-educated workers move into higher-skill occupations. In any case, it certainly indicates a change in the selection process by which women remain in the labor force. More analysis is needed to understand these important changes.

8.3 Human Capital and Educational Attainment

What then is the evidence on the accumulation of human capital in China? Table 8-1 shows the educational attainment of the population. The educational levels achieved right after the Cultural Revolution, at the beginning of the Reform Era, are described in data from the 1982 Census, shown in the first column of Table 8-1. At that time, for a country still at relatively low income levels, China displayed a good level of basic skills. Although a third of the population was classified as illiterate or semi-literate, that was actually a significantly lower proportion than other low income countries. However, the proportion of the population who had achieved higher education was quite low: Less

than 1% of China's adult population had any college education in 1982! (Table 8.1 classifies individuals in an extremely generous manner, and so tends to overstate China's educational attainment: it places individuals in a category if they have full or partial attainment, so the figure for college includes not only those with college degrees, but also those with one or two years of college or junior college or technical school; adult education accounts for a significant proportion of attainment, and standards are not always as high as in full-time schools.) Thus, while China's percentage of illiterates was significantly below that of India, so was the percentage of college graduates. In India, at least 4% of the population had some college education (according to the 1991 census).

Table 8.1 Educational Attainment of Population (percent)

Population, 15 and Above*	1982	1990	1995	2000	2010
Tertiary (above grade 12)	0.9	1.7	2.3	4.7	11.0
Upper Middle (up to grade 12)	10.0	9.4	9.4	14.4	16.1
Lower Middle (up to grade 9)	23.8	27.2	31.0	39.1	42.4
Primary (up to grade 6)	30.8	43.2	43.6	32.9	24.1
No Formal Schooling	34.5	18.5	13.6	9.0	6.4
(2010 data is for population 16 and above)					
Urban Employed, 16 and Above	2010				
		1.3	Post-Graduate Education		
		10.7	Four Year University		
		14.3	Technical School		
Tertiary (above grade 12)	26.3				
Upper Middle (up to grade 12)	25.3				
Lower Middle (up to grade 9)	39.6				
Primary (up to grade 6)	8.2				
No Formal Schooling	0.6				

After the reform era began—and in reaction to the egalitarianism of the Cultural Revolution—educational resources were concentrated on building up higher education. This resulted in neglect, and even regression, in primary education, particularly in rural areas. Nevertheless, Table 8.1 shows that progress has continued even at the bottom of the educational pyramid. Illiteracy has declined to less than 10% of the adult population, quite a respectable achievement. Moreover, from the mid-1990s, the government began to place more effective emphasis on basic education. A program was adopted to make 9 years of education compulsory, and to eliminate illiteracy among young people, initially in those counties with sufficient economic development and budgetary resources to support the effort on their own. After the mid-2000s, the program was dramatically expanded in an attempt to achieve truly universal coverage. The government declared in the early 1990s a target of government budgetary spending of 4% of GDP on education; however, it was not until 2012, nearly 20 years later, that such a level of budgetary expenditure was actually reached (Chapter 18). In recent years, China has advocated

policies of “putting people first,” fostering technological creativity, and adopting a “scientific approach to development.” A recent government planning document pointed out that “Accelerating the development of education is the basic path to converting the enormous pressure of population in our country into the comparative advantage of abundant human resources.” (Eleventh Plan Suggestions [2005], Section 30). If these statements are to be anything more than empty slogans, the government will have to take over funding over universal primary education.

At the top of the educational pyramid, progress is now occurring quite rapidly. The Census results in Table 8-1 show the dramatic increase in the share of the population with some college education, which increased by ten times in the nearly thirty years to 2010. The number of college graduates began to increase very rapidly in 2001. From 2001 through 2005, the total number graduating college *tripled*, increasing from one million to slightly over three million. With about 5% of its population now with some higher education, China has closed the gap with India. Nevertheless, people with skills and education remain in comparatively short supply. The figures for “college” include many with a few years of training at technical schools. And the gap with developed countries is still very large. In the US, 52% of the population above 25 years old has some college, and 26.7% have completed four or more years of college. 84% are high school graduates (US Census Bureau). Because of China’s huge population, it is able to provide adequate numbers of skilled individuals to support rapidly growing high-skill sectors. But the average level of skills is still low. China is a middle income country, and remains short of a broad range of productive skills, even as it is building those skills at a rapid pace.

8.4 Labor Market Segmentation: A Deeper Look

The Mincerian framework introduced above can be used to take a closer look at the segmentation of urban labor markets. Rural-to-urban migrants face barriers and restrictions on their occupation choice. When migrants enter urban labor markets, they face an immediate penalty: in the simplest possible form, we can introduce “urban residence permit” as a right-hand side variable. Unfortunately, the richest data source for China—the annual urban and rural household survey conducted by the National Bureau of Statistics—does not have sufficient coverage of the migrant population to make such estimates with confidence. Xue, Gao and Guo (2014) estimate a model of migrant wages based on a separate survey for 2005 and 2010. They find the participation in the “informal” sector results in a 23% lower hourly wage; and in addition, even within the informal sector, those without an urban residence permit have 7.6% lower wage.

The Mincerian framework allows us to take the analysis a step further. Even after accounting for sector and hukou differences, migrants in the informal sector have lower

earnings. This is because migrants both have lower education levels, and earn a lower skill premium for the education they do have. Thus, a year of education increases wages only 4.6% in the informal sector, but 9.6% in the formal sector (in 2010). The lower education levels of migrants explain a significant amount of the earnings differential (37%), but the lower return to skill, and the residence permit “penalty” explain substantially more. This not only shows labor market discrimination, it means that migrants have much lower incentives to invest in education. The Chinese government is making a major effort to incorporate the “informal” sector into the structure of government benefits and regulation. See Chapter 18 for discussion of social services.

8.5. The Migration Decision

Having examined the return to different worker characteristics or attributes, we are now in a position to return to the phenomenon of rural-to-urban migration, described in Chapter 5, and examine the individual decision-making process more closely. Migrants move in search of opportunity. Thus, we expect migration to be driven by an income differential, as they seek higher incomes. The best studies of Chinese migration have interpreted it through the framework of household decision-making. The basic premise is that the decision to migrate is made by households rather than individuals. Migration is initially costly, and households must subsidize the initial costs of out-migration, typically of a young adult household member. They do so because they expect that migration will bring long-run benefits to the household. Thus, although the individual income gap between the urban wage and the return to farming is the right starting point for understanding rural-to-urban migration, it is only the beginning. For example, Taylor, Rozelle and de Brauw (2003) find that an additional family worker increased the chance an individual would migrate in the 1990s by 28%, because a larger family is able to support the migrant’s initial costs, and can more easily sustain agricultural production.

Unique institutional features in China also shape the migration decision. At the place of origin, ties to the land continue to be strong because land ownership is to some degree contingent on farmers using the land. Migrants may fear losing their land use rights, since the collective has the authority and incentive to redistribute scarce land to those with more stay-at-home workers. At the place of destination, the household registration system in China raises the costs (and risks) of living in the city, making it much more expensive to settle down. Moreover, as discussed earlier, the urban labor market is strongly segmented, and some occupations are still not open to migrants. For these reasons, we might expect Chinese migration to take the form of “sojourning,” of medium-term residence in the city, followed by a return to the native place. In fact, migration everywhere is characterized by a significant share of sojourning. But if this

phenomenon turns out to be even more important in China, it may have a significant impact on rural development patterns.

In fact, we observe that migrants often return to their place of origin, in part to fulfill long-term life goals, such as marriage and raising children (Hare 1999, Roberts *et al* 2004). How should we understand these returned migrants? Do they represent those who have failed in the city, and now retreat to their native place? Or do they represent relatively well educated residents who return with new experiences and entrepreneurial ideas, and who can provide benefit to their places of origin? Zhao Yaohui (2002) studied return migrants in six provinces. She found that older and married persons were more likely to return, and that the probability of return declined as the migrant's stay in an urban location lengthened. Perhaps surprisingly, more education significantly raised the probability a migrant would return. These features seem to suggest that returnees may be those who have positive skills and experiences they can bring to bear in their place of origin.

The interaction between education and out-migration is particularly worth attention. In most studies of migration, education is found to encourage migration. Indeed, a large part of the economic value of education in rural areas comes precisely from the fact that it increases the chance that a worker will relocate and find a higher income outside his place of origin. However, several of the initial studies of migration in China found a very weak relationship between education and migration. Zhao (1999) studied a large sample in Sichuan province and found that although schooling raised the probability an individual would take a non-agricultural job in his or her place of origin; it had an insignificant effect on raising the probability of out-migration. Hare (1999) found similar results in an intensive study of Xiayi County in Henan province. de Brauw and Giles (2005) studied the interaction between rural high school and migration, and found that high school does little to increase the income of migrants, and that, perhaps as a result, out-migration is an alternative to attending high school. These studies suggest that the positive benefit of migration might be limited by the institutional rigidities of China's system. If education does not increase the benefits of migration, it may be that the full range of opportunities potentially created by migration are still limited in the Chinese context.

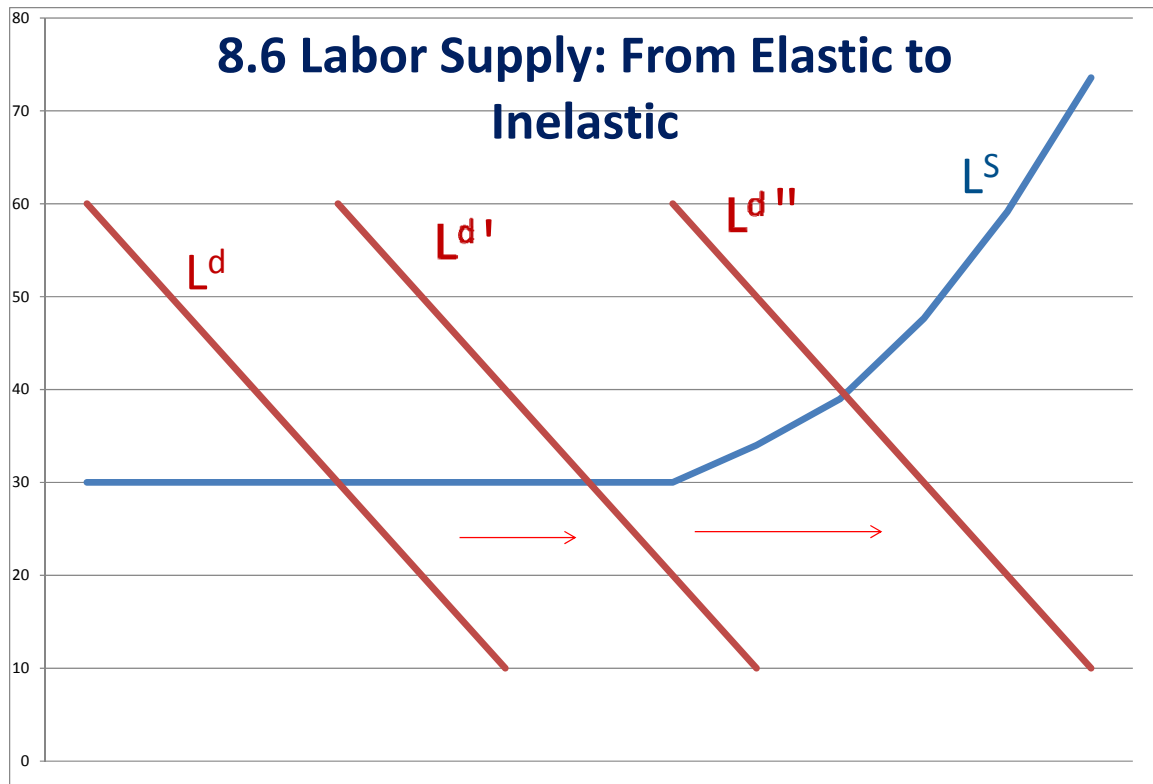
However, de Brauw et al (2002) found that the migrant labor force has been getting younger and that formal education has been increasingly rewarded. In fact, in their study, they found that each year of education increased the likelihood of migration by 17% in the 1990s, up dramatically from the 6% increase they found in the 1980s (through recollected data). This finding may be related to the rapid increase in the proportion of young people in the migration stream. Younger workers are increasingly specializing in off-farm work, either through migration or local non-farm employment, and this may be changing the migration calculus. Many of these younger workers have little or no direct experience with farming. They are more likely to stay in the city long

term, and have generally foreclosed the option of farming in their place of origin. The share of female migrants, while still below that of males, has also been increasing rapidly. This suggests a shift in the pattern of migration in China, away from the temporary sojourning of the previous generation, and toward a new mass movement as young people leave the land. For this shift to be sustained, though, China's urban labor markets must prove capable of absorbing the increased inflows, and expanding the opportunities available to migrants.

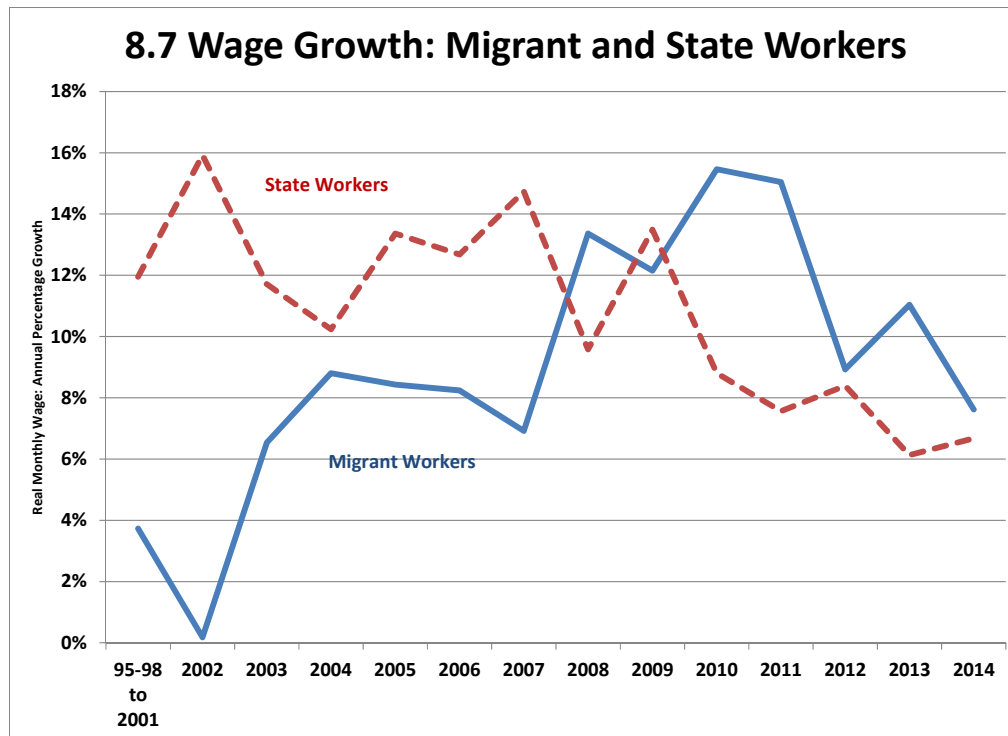
8.6 Labor Supply and the Lewis Turning Point

China is going through profound changes in its labor markets that point to substantially slower growth. For decades, the abundant supply of labor in the countryside, high natural growth rates and (most important) rapidly increasing rural-to-urban migration meant that the supply of unskilled labor seemed inexhaustible and unskilled wages grew very slowly. But after around 2004, the demand for unskilled labor began to increase more rapidly than supply, with the result that the wages of unskilled, and especially migrant, workers began to increase rapidly. Feng Lu of Peking University has compiled available studies into a consolidated series for migrant worker wages: he finds that between 2003 and 2012, real migrant wages (corrected for inflation) increased at an average annual rate of 10.8%, so that 2012 wages were almost exactly 2-1/2 times what they had been in 2003.ⁱ To some extent, this rapid increase reflects the earlier "imbalance" discussed above: the extraordinary rise of Chinese exports in the mid-2000s began to push up migrant wages after a decade of very slow growth. The increase in wages was thus a natural part of the rebalancing process that took place at mid-decade. However, this increase in wages has been sustained in subsequent years, notwithstanding much slower growth of Chinese exports.

This pattern suggests to many Chinese economists that China has passed through a so-called "Lewis turning point." The Lewis turning point refers to a point in the development process when abundant supplies of "surplus" labor are exhausted, and wage increases are necessary to draw workers out of the agricultural sector (that is the supply of labor becomes less than perfectly elastic).ⁱⁱ According to the original Lewis model, these changes primarily reflect changing conditions in the rural economy: as agriculture becomes more productive, while more young workers leave the countryside there is no longer a pool of "surplus labor" willing to move to the cities or export zones. Changes of this sort occur in all successful developing economies. Clearly they have occurred in China: in many accessible rural areas, all the young people have left; non-agricultural jobs are available nearby; and older people are not willing to leave the farm. These labor force changes force broader structural changes in the economy.



The concept of the Lewis Turning Point is controversial. There are basically three reasons to reject the concept. First, some deny that China has reached the Lewis Turning Point on the grounds that there is still substantial under-employed labor in the countryside willing to leave (estimates of around 80 million are common: Knight). Relatedly, some argue that the wage trends are a reflection of cyclical phenomena (the big trade boom in 2005-2007) and the improvement of terms of trade for agriculture (Yao Yang). Finally, some reject the concept in principle because they believe it contradicts the observed income maximizing behavior of farmers in China and elsewhere (Ge and Yang). These are important arguments. However, the essence of the idea of the Lewis turning point in China is that labor supply has passed from a period of near perfectly elastic supply to one of relatively inelastic supply (Figure 8.6). This seems to fit the situation in China in which the lowering of barriers between rural and urban unleashed an enormous flow of pent-up laborers. While there are still plenty of under-utilized workers in the countryside, they are typically older, more settled, less willing to move, and less located in accessible regions near the coast. Thus, the real wage necessary to attract them to leave the farm is rising systematically.



The data seem to support this interpretation. Figure 8.7 shows trends of wages for rural migrants and state-sector workers. Migrant wages increased very slowly from at least the mid-1990s to 2002. This period of slow growth seems to go back earlier, but the data are sparse and unreliable (Lu 2012 assembles and assesses the available data). After 2003, wage rates increase, but still grow more slowly than state wages through 2007. From 2008, the data are more reliable, and they now show migrant wages increasing at least as fast as state workers' wages. Effectively, the Lewis Turning Point has arrived.

8.7 Labor Markets Concluded

Labor markets in China appear to be increasingly competitive, and more effective at rewarding the productive characteristics of workers. In both urban and rural areas, there is evidence that the returns to education are increasing. Nevertheless, China's labor markets are still distorted by institutional barriers and incomplete markets. The initial absolute separation between urban and rural work has been eliminated, but it has been replaced by a segmented urban labor market, with rural migrants overwhelmingly working in the informal sector. Further stages of labor market integration are urgently called for, and can be expected to significantly improve the productivity of the Chinese economy.

Dramatic changes have reshaped nearly every aspect of China's labor economy. These changes have not completely eliminated the privileged social status that state enterprise workers had occupied under the command economy. At the same time, changes have opened up new sources of mobility, for rural workers seeking urban employment, and for urban workers with higher levels of skill and training. Overall,

urban incomes have increased dramatically. But at the same time, these institutional changes have led to increasing income diversity within urban areas. For those workers who have been laid off, the reduction in income has been exacerbated by the need to adapt to continuing job insecurity and the recognition that social insurance provisions are far less complete and reliable than they were before. The increasing bifurcation of urban areas into a formal and informal sector creates new social challenges for China.

In the broader perspective, China's labor market is now facing dramatic changes. The overall growth rate is slowing just as the Lewis Turning Point is being reached. These portend large changes in cost conditions and undoubtedly will lead to a more slowly growing China in the years ahead.

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ⁱ Feng Lu, "Consolidation or Stimulation? Remarks on China's macro-economic situation and policy," US-China Economics Dialogue, Beijing, June 19, 2013.

ⁱⁱ For a good collection of academic articles on the subject, see the 2011 special issue of *China Economic Review*, and especially the article by the leading proponents of this view, Cai Fang and Du Yang, "Wage increases, wage convergence, and the Lewis turning point in China," *China Economic Review*, 21: 601–610.