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China's Labor Market*

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1. Introduction

More than two decades into an era of sustained reform, China's labor force has experienced fundamental transformations. At the inception of the reform in 1978, an overwhelming majority of the labor force was either employed in urban state-owned enterprises (SOE) or as agricultural workers in rural communes. The reform has led to dramatic changes in the distribution of jobs. By the end of the 1990s, about one third of the rural labor force had moved into non-farm activities (see Table 1), and about three-fifths of the urban labor force had found employment outside of the state sector, in urban collectives, joint ventures and private enterprises (see Table 2). Connecting the rural-urban labor markets, there were about 77 million rural migrants working temporarily in cities in 2000 (Cai, 2003).

Prior to reform, job changes were either prohibited or controlled by responsible government agencies. The fundamental shifts in the distribution of employment across sectors and ownership categories that have occurred under reform require an allocative mechanism for labor far more flexible and sensitive than nations have ever achieved with administrative controls. The emergence of a functioning labor market has been essential to this transformation, a fact that the Chinese Government recognizes. A series of reform policies and deregulations was instrumental in the emergence of labor markets. But due to the incomplete nature of reform, some existing policies and institutions still prevent the labor market from efficient operation. The uneven institutional evolution of labor markets and their regulation has profound social and political consequences for China. Dealing with this labor-market transformation is one of the most challenging tasks facing the Government and the Chinese Communist Party, and the ways in which laws, regulations, and institutions evolve in response to this challenge raise a series of questions of great academic and policy interest. The goal of our paper is to address some of these questions and to discuss and evaluate the ways in which answers are evolving.

We address the following two main questions that China's ongoing economic reform raise for the labor force and labor markets:

(1) What are the implications of economic reform in general for labor-market institutions?

(2) What are the current conditions of the labor markets and what are the major challenges for further reform?

In dealing with these questions, we examine the progress of economic reform to date and how it has led to the need for radical changes in labor-market laws and regulations; and, most important, how have these laws and regulations been applied and what are the implications for the allocation of labor? We also discuss continuing labor-market problems and the policy choices confronting policy makers today.

Our treatment divides the discussion between rural and urban labor markets. The reason for this division resides in a fundamental characteristic of the Chinese economy under planning, namely, the formal segregation of the rural (agriculture-centered) and urban (manufacturing-centered) economies and labor forces. These two sectors were treated as separate entities, critically related to each other, for the entire period of central planning, which started in 1949. This segregation is still the major factor underlying Chinese labor-market problems and policies today. It has led to major problems of incentives, mobility, wage differences, and social policy between the rural and urban sectors. The division between state/non-state ownership sectors; social security (including medical coverage and pensions) and unemployment (including unemployment insurance); and related issues of housing, education, and other social services all differ drastically between China's rural and urban economies, even though the two sectors are connected forcefully by the potential gains from trade and the major factor-market disequilibria between them.

In our discussion, we will focus on how appropriate labor market policies are necessary for the success of economic reform and how their absence is a major source of failure. We measure the achievements of reform to date, as well as the need for further reform, with the metrics associated with economic efficiency and productivity. An irony worth noting, perhaps, is that this metric is based in part on formal analysis supporting the viability of government ownership under socialism (Lange and Taylor, 1966), and a

major contributor to the reform movement has been the failure of both policy and practice to approach the frontier of efficiency and productivity in China. We treat the institutional factors underlying successes and failures of reform and we pay particular attention to policy issues, including the sequencing of reforms (e.g. provision of social security and implementation of labor contracts); coordination among various reforms (rural land arrangements and labor mobility, housing reforms and labor mobility); the political economy of reform (e.g. efficiency and protection of state-owned enterprises -- SOEs); and other topics related to the conflicts and congruence of political and economic objectives.

2. Rural Labor Markets

The segmentation of China's rural and urban labor markets can be traced to the heavy-industry-oriented development strategy pursued vigorously in the period of central planning.¹ The main mechanisms for enforcing this strategy included the unified procurement and sale of agricultural commodities, the people's communes, and the household registration system that designated the legal place of residency and work (*hukou*) for the entire population. This development strategy resulted in massive distortions in the factor markets with an excessive concentration of capital in urban areas and of labor in rural areas. Prior to the reform in 1978, urban workers' productivity and earnings far exceeded those of their rural counterparts.

Within rural regions, the labor force was governed under the people's communes, which received production targets from the planning authorities and delivered output to agents of Government at state-dictated low prices. Ever since the tragic experience of the Great Leap famine of 1959-61, which resulted in 20 to 30 million excess deaths, national policies stressed agricultural production and local grain self-sufficiency. Rural industries were underdeveloped and remained subsidiary to agriculture (Findlay et al., 1994; Naughton, 1996).

Therefore from a labor-market perspective, there were two sets of problems with central planning on the eve of economic reform in 1978: (1) the pervasive labor incentive problems due to the organization of work within communes, and (2) the severe

misallocation of labor between rural and urban sectors, as well as between agricultural and non-agricultural activities within rural regions.

2.1 Local Market

Market-oriented development in rural China started with a package of three reforms: the replacement of production teams with households as basic production units (under the Household Responsibility System -- HRS), official increases in agricultural product prices, and the liberalization of markets for rural products. These reforms provided the necessary conditions for the boom in rural industries starting in the mid-1980s and were instrumental in the emergence of labor markets in rural China.

The transition from communes to a household-based farming system began in 1979 in Anhui province and was essentially completed nationwide by 1983. This institutional change, which on the margin introduced the link between compensation and family work effort, solved the labor incentive problems in the communes, and resulted in dramatic increases in labor productivity and earnings. Consequently, the demand for workers declined on small Chinese farms. In the same period, the Government initiated planning reforms that reduced the number of production targets (or categories). Of the remaining targets, few were mandatory and many were guided by complementary prices and incentive schemes (Sicular, 1988). Because the HRS increased families' command over their productive resources including labor, farmers had both incentive and also some freedom to seek non-farm employment.

In 1979, the government also implemented large increases in state procurement prices for agricultural products, with a weighted increase in quota and above-quota prices of 22.1 percent.² As a result, large amounts of funds were injected into the rural economy, creating demand for industrial products and funds for capital investment, especially in non-farm production. Concurrently, the opening of rural markets not only accommodated the sale of non-farm products, but also facilitated the purchase of inputs for rural industries. Clearly, the three reforms were interrelated: each reinforced the impact of the others on the development of labor markets.

Hence, by the mid-1980s, the conditions for accelerated employment growth in China's rural industries were in place. Input and output markets had emerged, households were conscious of their alternative opportunities, and they had incentive to seek employment with higher earnings in the non-farm sector. There is little question that the marginal productivity of labor was higher in rural industries than in the cropping sector, indicating excess allocation of labor to agriculture (Putterman, 1993; Yang, forthcoming).

Table 3 summarizes a series of government deregulations in the 1980s that became the catalyst for rapid expansion of rural enterprises. These well-coordinated policies reduced farmers' obligations in agriculture and loosened restrictions on labor mobility, prompting farm families to adjust their activities in accordance with relative profit margins. In 1985, the grain-sown area at the national level fell by 4 percent and grain output by 7 percent; the cotton-sown area fell by 26 percent, and cotton output by 34 percent (Sicular, 1988). In contrast, the number of township and village enterprises (TVEs) more than doubled in the same year, and their total labor force increased by 36.5 percent, following already rapid growth in 1984 (see Table 1). These dramatic changes in policies and in farmers' responses marked the beginning of the sustained expansion in non-agricultural activities.

Indeed, the fundamental shift in the distribution of the labor force shown in Table 1 has been the striking feature of China's rural labor market since the inception of reform. Between 1978 and 2000, the rural labor force grew by 2.6 percent per annum, from 306.4 to 479.6 millions. However, the workers in rural non-agricultural activities increased by about 27 percent per annum, from 21.8 to 151.6 millions. Table 1 also shows how the incremental rural labor supply was absorbed during the entire period. The remarkable statistic is that approximately 75 percent of the increment found employment in the non-agricultural sector, with a majority finding jobs in TVEs. Empirical evidence shows that for 1986-1995, the rapid expansion of non-farm activities contributed 43.6 percent of the total income growth of farm households for a large sample from Sichuan province (Yang, forthcoming).

Rural labor movements are not restricted to local jobs. In fact, rural-to-rural mobility, defined as employment of workers' in rural villages other than their home

villages, represents a rapidly growing component of the rural work force in recent years. According to Lohmar and Rozelle (study forthcoming), based on a nationally representative survey of 215 villages, rural-to-rural migrant workers accounted for one percent of the rural labor force in 1988 (about 2 millions), but grew quickly to 5 percent in 1995 (about 12.9 millions). In 1995, workers from other villages comprised 62 percent of the employees of rural private enterprises, and 46 percent of those of collective enterprises. Moreover, incoming labor from other villages reduced neither the non-farm employment opportunities of local residents nor the wages they received.

2.2 Rural-Urban Migration

The pursuit of the heavy-industry-oriented development strategy in the pre-reform era caused severe segmentation between the rural and urban sectors in China. The results were massive distortions in the factor markets with an excessive concentration of capital in urban areas and of labor in rural areas.³

Accordingly, on the eve of economic reform in 1978, the urban-rural per capita income ratio reached 3.4 (see Table 4). The pressure for rural-urban migration was magnified by rural reform that reduced the demand for farm workers, and it could not be offset, even though it was ameliorated, by the burgeoning TVE sector. When rural reform abolished the communes in 1985 and reduced the role of central planning in agricultural production and sales, *hukou* became the most important legal barrier to rural-urban migration.

China has used a household registration system for tax collection and social control purposes for over 2,000 years, but its current importance stems from its formal adoption by the Chinese government in 1958, with the issuing of *Regulations on Household Registration of the PRC*. According to the regulation, *hukou* designates a person's legal place of residence and work at the time of his or her birth based as the locality of the mother's registration (Chan and Zhang, 1999). Possession of the appropriate *hukou* (e.g. agricultural versus non-agricultural) also determines one's access to various amenities and social services such as health care, schooling, and until recently, rationed or subsidized food products, which were provided only to urban residents.

Therefore, although rural workers had strong incentives to seek employment opportunities with better pay in cities, they had to overcome legal barriers to working in cities.

Because of the inefficiency associated with labor misallocation, the *hukou* system has been modified in recent years to permit more mobility of labor between rural and urban markets. In 1988, the central government initiated a major policy reform that relaxed the controls over rural-urban migration -- farmers were permitted to work and to carry on business in cities provided they could secure their own staples (Forbes and Linge, 1990). This regulation gave new opportunities for rural workers to work temporarily in cities, representing improvements over the old system in which college education (and, otherwise, not even marriage) provided the only legitimate access to urban registration (Chan and Zhang, 1999).

In the early 1990s, the end of food rationing further reduced the costs of living for temporary rural migrants in cities because they no longer had to bring food with them from the countryside. They could purchase food directly without securing ration coupons. In 1998, the Ministry of Public Security issued another regulation loosening the control of *hukou* registration – those who moved to join their parents, spouses and children in cities could also receive urban registration (Cai, 2003).

At the end of 2003, *hukou* reform is still incomplete and its progress varies across provinces and even cities. In general, local situations fall into one of three models (Cai, 2003): (1) in over 20,000 small towns, applicants may receive local registration if they have a permanent source of living and housing in the locality, (2) in many medium-size cities, including a few provincial capitals, requirements for gaining *hukou* status have been significantly reduced; some just require a long-term work contract, and (3) in few mega-cities such as Beijing and Shanghai, obtaining *hukou* remains very difficult. It is doubtful that radical liberalization will occur so long as loss of the power to grant or withdraw *hukou* registration is deemed a threat to the incumbent government's political power.

When restrictions on rural-urban migration were gradually lifted, the rural labor force responded to economic incentives by seeking employment in urban areas. The majority of rural workers who work temporarily in cities do not have the correct

household registration (*hukou*) status, and they are called the “floating population.” Estimates of the size of the “floating population” over the years vary with definitions based on length of temporary residence and geographic boundaries (across-townships or counties) (Cai, 2003). A research team at the Ministry of Agriculture (MOA, 2001) reported a summary of estimates based on their findings as well as survey results from the State Statistical Bureau (SSB) and the Ministry of Labor and Social Security (MOLSS). In 1983, the total floating population was approximately 2 million. For the four years 1997-2000, the annual estimates for across-township migrants of whom the overwhelming majority were laborers were, respectively, 38.9, 49.4, 52.0, and 61.4 million. Another independent survey by MOA puts the estimate at 75.5 million for 2000. Based the 2000 census, Cai (2003) offered an estimates of 77 million rural-to-urban migrants for that year. An important message from these results is that, even allowing for imprecision in the estimates, the floating population comprises a significant component of China’s labor force. In 2000, it accounted for up to 11 percent of all Chinese workers.

Given the severe distortions at the inception of reform, the subsequent labor movements from the low productivity sector (agriculture) to the higher productivity sector (non-agricultural) became a major source of economic growth in China in the post-reform period. Estimates by the World Bank (1997) suggest that labor mobility contributed 1.5 percentage points (16 percent) to the annual GDP growth rate of 9.4 percent in 1978-1995. Cai and Wang (1999) corroborate this result, concluding that labor reallocations, including labor transfers among regions, have accounted for 21 percent of annual GDP growth in the post-reform years.

2.3 Evidence of Distortions and Fragmentation

While economic reform to date has generally improved labor-market conditions, there still exist serious institutional barriers to free labor mobility and competitive wage determination. Two important policy questions are: (1) to what extent has the allocation of labor moved toward optimal conditions in local rural markets and between the rural

and urban sectors? (2) If serious distortions still exist, what are the remaining barriers and what policies are needed to improve labor-market efficiency?

The impact of intervention policies on worker earnings and labor market efficiency can be assessed in several ways. One approach is to examine closely each of the specific institutions and regulations, quantify various policy measures, and estimate their direct impact on wage distortions and output losses. Then, the total effects of the policies can be aggregated from the individual programs.⁴ For several reasons, this approach is difficult to apply to labor markets in China. First, quantitative estimates of demand and supply are needed, but the required detailed survey data covering a long period on employment and pay at both firm and individual levels are unavailable. Second, many governmental interventions in China go beyond readily-quantified practices such as imposing a minimum wage or raising an income tax, so the usual quantitative tools of policy analysis are extremely difficult to implement. Finally, because China's institutions and policies have changed dramatically during the reform period, it would be difficult, if not impossible, to trace all the specific policies and to aggregate their effects.

In what follows, we use an alternative approach that focuses on the outcomes of the interventional policies by examining the disparities in worker wages, productivity, and earnings across various locations and economic sectors. This approach rests on a simple premise: despite the complexity in measuring intervention and complicated channels of policy effects, distortionary policies eventually reveal their effects in deviations of worker productivity and compensation from what they would have been in the absence of distortions. Specifically, we take differences in the earnings of comparable labor across sectors to indicate the impact of labor-market segmentation resulting from inappropriate policies and institutions. If labor-market reform has improved conditions of employment and pay, we would expect to observe the narrowing of earnings differences across sectors over time, assuming that other factors, e.g. the opening of markets to foreign investment and foreign competition, have sector-neutral effects.

Of course, we must be cautious in making wage and productivity comparisons across occupations and economic sectors. First, differences in labor quality, including

schooling, training, and experience, have to be weighed when considering earnings in alternative sectors. Second, any differences in the cost of living between diverse geographic areas should be taken into account. Furthermore, the comparison should also reflect differences in the provision of subsidized public services, such as health care and housing, across the sectors. At the empirical level, although it is difficult to adjust for all these factors because important information is usually unavailable, we do as much as we can to account for them. For analyses that cover an extended period, we take advantage of such time-invariant factors by focusing on *changes or convergence* of wages across locations.

Rural-Urban Income Differences

Under efficient conditions, earnings for comparable labor across rural and urban areas should be about the same, corresponding to the equalization of marginal labor products across sectors. A key word, of course, is comparability. Rural and urban workers vary in many characteristics, not all observable, so that equality of wages across sectors is unlikely to be achieved in fact or even to be desirable from an efficiency perspective. In China, however, the ratio of urban to rural per capita income is very large indeed, considerably greater than in other developing and transitional economies. We believe that this results from severe barriers to efficient labor flows.

Table 4 presents urban and rural per capita total incomes and their ratios for the period 1978-1997. The primary data sources are from the Rural and Urban Household Survey collected by the China State Statistical Bureau with adjustments for (1) information on urban non-wage earnings, including provisions such as housing, health services, in-kind transfers, and various price subsidies, and (2) sector-specific inflation.⁵ The earnings in urban areas have been about two to three times higher than the level in rural areas. The urban-rural ratio declined sharply as rural incomes responded to the spread of the Household Responsibility System after 1978 but tended to drift upward between 1985 and 1995 before beginning to decline slowly.⁶

It should be noted that government policies that discriminate against agriculture lead to rural-urban income disparity in other developing countries. What should concern

scholars and policy makers is the magnitude of the gap in China. Yang and Cai (2003) presents the ratio of non-agricultural to agricultural incomes for a standard worker across 36 countries. The ratios for the majority of the countries are below 1.5, contrasting sharply with the range for China, which generally fluctuates between 2 and 3. More specifically, in 1985, there were only four countries for which average urban earnings were more than twice average rural earnings. There were five countries in 1990 and three countries in 1995 that had ratios of 2 or more. Moreover, the countries with the ratio exceeding 3 were the poorest countries in the world, where market distortions were pervasive. They report that the ratio of non-agricultural to agricultural income in several Eastern European countries in 1995 varied between 1.19 in Poland to 2.01 in Bulgaria, the only country that approached the urban-rural income ratio in China in 1995. Earle *et al.* (2002) regress log earnings on schooling, experience, industry, ethnicity, and residence location; they estimate that holding these characteristics constant, urban workers in Romania earned about 10% more than rural workers in 1994. Although caution is required in making cross-country comparisons, these figures suggest that the fragmentation of China's rural-urban markets has been very serious indeed.

There is evidence that the decline in the urban-rural gap in China after the mid 1990s is due to diminished barriers to migration. Park *et al.* (2004) report an analysis of rising income inequality in China that, although based on urban data, sheds some light on rural-urban inequality. As reported by Poncet (2003b) a major barrier to the integration of China's labor markets occurs at provincial borders. Park *et al.* (2004) decompose the changes in wage inequality into price and quantity components and find that a large share of the increase in inequality between 1988 and 1999 was due to growing disparity among the six provinces in wage rates paid to workers with the same education and experience and working in the same industry group. However, they estimate that the contribution of regional differences to overall wage inequality stopped increasing around 1997 and may have declined very slightly since then. Poncet (2003b) investigates rural-urban migration flows directly using panel data on movement both within and between provinces extracted from the population censuses of 1990 and 1995. These data permit analysis of migration flows during two periods: 1985-90 and 1990-95. Her approach permits estimation of "border effects," that is the additional barrier in terms of cost to

migrants of crossing provincial borders. She finds substantial border effects that on average reduce interprovincial migration to less than 10 percent of what it would have been, given the effect of distance-related and other costs on intraprovincial rural-urban migration. However, she estimates that interprovincial border barriers declined between 1985-90 and 1990-95.

Despite the large absolute number of migrants in China, interregional movement is much smaller than might be expected in comparison to what it would be if relocation were unrestricted by existing legal and economic barriers. Johnson (2003) reports that interprovincial migration in China between the 1990 and 2000 census was about one-fourth the magnitude of interstate migration in the United States. Given the immense regional labor-market disequilibrium that characterize today's China, a more telling benchmark is the United States during its period of greatest rural-urban population relocation, which was ten times the magnitude of China's migration flows today, relative to population.

Before going further, we address a possible objection to our focus on labor flows, namely, that capital flows are a substitute for human migration. In a perfectly homogeneous environment with no fixed geographical factors or agglomeration economies, equality of marginal products would be independent of the location of either labor or capital, so long as factor ratios were appropriate. Moreover, it is well known that in the classic two-good/two-factor Heckscher-Ohlin framework, interregional trade would substitute for interregional migration in equalizing marginal products. Poncet (2003b) considers this possibility for China and finds that the conditions under which migration and trade would substitute for each other do not hold. In fact, migration and trade are complementary, and steps to reduce interregional barriers to trade within China increase, rather than reduce, the potential gains from freer labor migration. In a related study, Au and Henderson (2003) model and estimate urban agglomeration economies in a production-function framework for 206 cities in China. Their estimates yield a familiar \cap -shaped relationship between city size and productivity, with the left-hand side being much steeper than the right-hand side. They find that barriers against migration to China's urban areas have resulted in a much higher proportion of cities contending with extremely large productivity losses. They estimate that, in 1997, based on a 95 percent

confidence interval, seven cities were oversized, implying modest productivity losses, while 73 were undersized, resulting in substantial productivity losses.

Rural-Urban Productivity Differences

While income differences are indicators of the relative economic welfare of rural and urban residents, they may not accurately reflect the efficiency of resource allocation when wages are not determined through competitive mechanisms. IN those circumstances, direct measurements of labor productivity are necessary. This is probably the case in China, so labor productivity estimates are needed to provide direct information on the sectoral misallocation of labor.

Several studies have found that the marginal productivity of labor (MPL) in state industries far exceeds the level in rural industries, and that the latter also far exceeds the level in agriculture. Yang and Zhou (1999) presents estimates of MPL for the three sectors using Chinese provincial data for the period between 1987 and 1992. They show that, within this time period, the MPL in state industries was about 15 to 16 times that in agriculture, and the MPL in rural industries was about 25 to 100 percent higher than in agriculture. These results are corroborated by other studies using more recent data. For instance, based on data covering 1987-1998, Cai *et al.* (2002) present evidence that the ratio of agricultural labor productivity to industrial productivity range from 12 to 17 percent across the eastern, central and western regions in 1998. The productivity differences across the sectors are very large indeed.⁷

The evidence of large productivity differences across the sectors implies the existence of serious labor mobility barriers that fragment sectoral markets in China. Consequently, as the model implies, if labor was reallocated from the low marginal productivity areas to the high marginal productivity areas, there would be gains in aggregate output without utilizing additional resources. A relevant policy question is: if more labor were transferred from agriculture to rural and state industries, how much would output increase?

We have conducted a policy experiment based on partial equilibrium analyses of reallocating 1, 5, and 10 percent of the agricultural labor force to rural and state

industries, with an equal percentage split of the total allocated to the two destination sectors. Each sector is assigned its own production function: rural and state industries use labor, capital and intermediate factors as inputs, while agriculture uses labor, land and machinery with weather also affecting its production. The production structures and parameter values are taken directly from the estimates made by Yang and Zhou (1999) and corresponding variable values for the Chinese provinces in 1992 are used in the policy experiment.⁸

The policy experiment shows that improvements in the allocation of labor based on their productivity across sectors would realize substantial output gains. When labor leaves agriculture, output in that sector will fall, but by much less than the output in rural and state industries will increase. Thus, the experiments based on three hypothetical percentages of labor transfers would result in 0.66, 3.09, and 5.82 percent gains in aggregate output -- substantial indeed. An independent study by Zhang and Tan (2003) supports these results. In their framework comprising four sectors (agriculture, urban industry, urban services, and rural non-farm production), the reallocation of 1, 5, and 10 percent of labor from agriculture to the other industries would result in 0.7, 3.3, and 6.4 percentage increases, respectively, in the aggregate output.

We note, however, that for several reasons these percentage increases in output are likely to represent upper bounds for the possible changes. First, the cost of living is usually higher in areas associated with rural and state industries relative to farming, regardless of whether they are in rural towns or cities. Second, the moving costs of labor transfers can be significant. And third, special skills are usually required for industrial jobs, and therefore training costs could tend to reduce the net gains associated with the job transfers. Nevertheless, even with these qualifications, the policy experiment points to serious distortions in the rural-urban labor markets and potentially large gains to be reaped from further reform.

The Two-Tier Urban Markets

Micro empirical analysis has also shown that rural migrants in cities do not receive competitive job and wage offers. Meng and Zhang (2001) conducted a careful study of

occupational segregation and wage differentials between urban residents and rural migrants in Shanghai based on two survey data sets containing individual information. They find that rural migrants are treated differently from their urban counterparts in terms of occupational attainment and wages, after controlling for productivity-related characteristics, such as education, gender, and work experience. With regard to occupational attainment, they show that around 22 percent of urban residents who would have been better suited for blue-collar jobs were given white-collar employment, while 6 percent of rural migrants who would have been suitable for white-collar jobs were relegated to blue-collar positions.⁹ City residents also enjoyed a large wage premium.

Urban residents as well as state and local governments are largely responsible for the existing situation. As Zhao (2000) points out, “as urbanites enjoyed more and more government subsidies, better protection, and higher incomes, they also came to believe themselves as being superior to rural people. This became the historical and psychological basis for the discrimination toward rural people.” Arising from these prejudices and institutional factors, the segregation in the urban labor market causes losses of aggregate output and also worsens the economic position of those who are already poor, which in turn may contribute to social instability.

Evidence from Rural Markets

Although substantial progress has been made in the development of a functioning rural labor market and farm families have enjoyed sustained income growth from diversified sources, several studies present evidence on continued distortions and market fragmentation. One puzzling observation based on available data is a persistent and widening wage gap between rural agricultural and non-agricultural sectors. Based on information from SSB on the national average wage of TVE workers and estimated earnings per agricultural worker, Meng (2000) presents the wage gap for 1984-1994. Inconsistent with the narrowing of the differences, the wage ratio of TVE workers to agricultural laborers actually increased from 1.52 in the beginning of the period to 1.94 at the end of the period. This persistent wage gap may result from multiple factors, such as comparability of worker quality across the two sectors and high costs of living and

transportation associated with employment in TVEs. But the widening gap is puzzling, suggesting the possibility that significant institutional barriers to labor mobility still exist even within rural China.

Estimates of the MPL between the agricultural and non-agricultural sectors corroborate the above evidence on wages. Using a production function approach, Wang (1997) estimated the MPL for agricultural and non-agricultural sectors, where the latter includes both TVEs and other types of rural industrial enterprises. The gap fell slightly during 1980-88 from a ratio of 2.55 in 1980 to 2.29 in 1988, but it started to widen again in 1989, reaching 3.68 in 1992. For 1987-92 using provincial level data, Yang and Zhou (1999) also found an increasing gap in agricultural and non-agricultural MPL, reaching 2.01 in 1992.

Gaps in wages and labor productivity across the sectors present indirect evidence on market imperfections in rural China, and direct tests corroborate these conclusions. In the analysis of the household, the separability result states that if factor markets are competitive, the labor actually used in production would be independent of the household size and composition (Bowles and Sicular, 2003). If the independence condition is rejected empirically, it implies non-competitive factor markets. A study by Bowles and Sicular, using panel data covering 1990-93 in Shangdong province, rejects the null hypothesis that family labor demand and supply are separable. They conclude that, despite considerable progress in market reform, in the early 1990s rural households in China still faced difficulties transferring labor and land optimally given their household size and composition. In a separate study, using 1994 data from Zhejiang province, Yao (1999) studies wage determination in TVEs and also tests the existence of competitive labor markets. His empirical analysis strongly rejects the competitive hypothesis, suggesting significant administrative controls on wages and employment.

2.4 Remaining Barriers and Policy Challenges

Despite major improvements in the institutional and policy environment, there still exist serious barriers to an efficient operation of labor markets in rural China. Although land rental markets have begun to emerge (e.g., Kung, 2002), farm families have land-use

rights under the HRS but not rights of alienation. If they permanently leave agriculture, farmers must return the land to local authorities and consequently give up a stream of potential earnings from land in the future (Yang, 1997). This pecuniary cost reduces labor mobility, as it raises the expected future wages that rural families require from their prospective employer(s) when moving away from agriculture. Moreover, China's farmland arrangements under the HRS obligate the farm household to deliver a part of its grain output to the state at quantities and prices specified by the government, which has the effect of restricting family labor allocation to alternative employment (e.g., Brandt et al., 2002). Hence, further reform in grain procurement systems and the property rights of rural land is needed.

Local protection is also a significant issue. For instance, a rural worker currently employed in the enterprise of another village is not allocated a homestead or other housing arrangements even if the job is permanent, which imposes high costs on the migrants. In addition, workers who are prior residents of a village often earn much higher wages than outsiders (migrants) after controlling for productivity-related characteristics (Yao, 1999). Recently, the Development Research Center of China's State Council conducted a nationwide survey on the local protection of rural and urban enterprises (DRC, 2003). In regard to the forms of protection frequently used by local authorities, "intervening in the labor market" tops the long list of 42 categories. More specifically, this practice takes the form of "giving priority to employing local citizens," and 57.7 percent of the enterprises surveyed indicate that their local governments engage in such practices. The policy challenge lies in the design of incentive structures to remove local government intervention in employment and wage determination, and thereby raise labor-market efficiency.

The lack of proper *hukou* subjects the "floating population" both to the risk of various arbitrary actions by local authorities carried out in the name of preserving social order and public safety, and to significant economic costs in the form of fees, work permits, bribes and so on. Perhaps the most significant example is schooling. Although national and local laws require that the municipality of residence (whether or not one's *hukou* grants permanent residence rights) is responsible for providing nine years of primary schooling for each child; in practice, this right is often denied. The result is that

migrant families must pay fees ranging from 3,000 to 30,000 yuan per year per child to have their children admitted to the regular school system or cooperate with other migrant families in providing their own schools and teachers. Even so, newspapers often contain reports of migrant schools being torn down by public authorities on the grounds that they provide inferior schooling or are safety hazards (claims that are probably true: see e.g., Xie, 1999).

None of what we have said is meant to deny that there are real costs to providing public services for migrants, and these costs must be borne either by the workers themselves, or by their employers, or by governments, or by some combination of them all. The main problem at present appears to be that current laws and regulations frequently militate against the efficient allocation of labor, and where there are provisions to ensure the equitable treatment of migrants, they are often not “incentive compatible” with the goals of local governments. Determining whether these deficiencies are due to the complexities of adapting to China’s transition from planning or to an unwillingness to forego the political control over an increasingly mobile population that the current system provides is beyond our scope.

3. Urban Labor Markets.

China’s urban market reform began late and proceeded slowly relative to the sweeping rural reform. Within the urban sector commodity and goods markets were liberalized earlier and at a faster pace than labor markets.¹⁰ On its face, the liberalization of commodity and goods markets would seem to have made ownership reform a simpler matter in urban areas than in rural areas, where procurement of essential inputs (e.g. electric power) militated in favor of enterprises retaining some relationship with local governments. However, urban market reform involve complex structural change in ownership along with political sensitivity, which introduced their own complications (see Korzec, 1992).

Urban labor arrangements under central planning included labor allocation by labor bureaus; *hukou* (residence permit) required for housing, food subsidy, schooling, and health benefits; *dangan* (personal file) under the control of work unit or educational

institution with its transfer required for a new job; incentives determined by permanent job tenure through retirement (the “iron rice bowl”); and wage determination according to the “wage grid” (Meng, 2000). All of these institutional arrangements imposed severe limitations on job mobility, and worker incentives to move were restricted further by provision of social security and even schooling by the work unit (SOE or urban collective).

3.1 The need for urban labor-market reform

There is ample evidence that China’s urban labor markets were inefficient under planning and continue to be so in the reform era (Korzec, 1992; Meng and Kidd, 1997). Big cities, coastal provinces, state enterprises, and production workers were favored over smaller urban areas, the interior, and non-traditional state enterprises well beyond the end of the Cultural Revolution. As a consequence, the benefits of China’s exceptional growth have eluded large segments of the population, especially in the interior. Wage policies under planning in China (initially taken from the Soviet schemes, and also applied to much of Eastern Europe) aimed to promote income equality in the industrial sector by raising the wages of lower-skilled workers above their marginal products while severely restricting the pay of higher-skilled workers. Not only did these policies discourage individual enterprises from minimizing the social cost of production, they also seriously impeded rural-urban and interregional migration, preventing labor from flowing to its most productive use.

3.2 Urban labor-market reform policies

In describing and analyzing China’s labor-market reform it is essential to distinguish between laws and regulations as they are written (“on the books”) and how they are applied (Ohnesorge, 2003). Evolution from a planned economy to freely operating markets involves governments at all levels relinquishing controls that they have long

exercised, and governments reasonably fear the loss of political power and authority in so doing (Clarke, 2003). Nowhere is this connection between a move to free markets and loss of political power more closely related than in labor markets.

Step-by-step reform has characterized almost all of China's transition from planning, and this gradualism has characterized the liberalization of urban labor markets. The labor contract system was first introduced in 1983 to cover new entrants to the state and collective enterprises. By 1995, 93 percent of SOE employees were under contract (Meng 2000, p. 81-2, Table 6.1). These reforms transferred some autonomy in hiring decisions from planners to enterprises, but left planners great scope to influence regional employment targets (Meng and Kid, 1997). Wage reforms introducing various profit-sharing arrangements were introduced beginning in the late 1970s. However, the degree to which various bonus schemes actually provided better incentives to reduce shirking and increase worker productivity is open to question (Meng and Kidd, 1997). A managerial responsibility system was introduced later and described by Grove et al. (1992); subsequently, management acquired additional managerial wage discretion (Xu, 2000). Fleisher and Wang (2001) and Knight and Shi (2003) do find some evidence that wage-setting behavior goes beyond simple profit-sharing and incorporates some incentive-wage effects. Their data pertain to both rural and urban enterprises for the late 1980s and in the 1990s through 1999.

Incentive reform was at the heart of the transition to the HRS in agriculture that spread with a lag to rural enterprises and then to urban enterprises. But the Government's continued interest in political control meant that the most thorough transition to operation under hard budget constraints was confined to the still-small private sector; within that sector, foreign-invested enterprises (FIEs) have been most free of political constraints.

3.3 Has reform been effective?

To appreciate the true extent of labor market reform in China, it does not suffice to outline the legal steps that have been taken during China's transition. As well, one must evaluate their impact in terms of various empirical criteria. There is ample evidence in

published research to establish the inefficiency of labor allocation in China during the 1980s and into the early 1990s. At the firm level, Fleisher et al. (1996) provide evidence of gross discrepancies between wages and labor's marginal product in a major manufacturing industry. Fleisher and Wang (2003a and b) corroborate this pattern in both rural and urban enterprises under various ownership forms through the early 1990s. These studies not only showed that college-trained workers were grossly underpaid relative to their marginal products, there is also considerable evidence from national surveys that the private returns to schooling in urban China were much smaller than in comparable transition and emerging economies as well as in advanced market economies. Since approximately 1995, however, returns to schooling have increased markedly in urban China (Park et al., 2003). Fleisher and Wang (2003c) also discusses this issue and cites numerous published and unpublished studies that corroborate the low return to schooling in China since reform.

Although possession of an urban *hukou* makes it vastly easier for workers to move from job to job, mobility within the urban sector remains limited. Generally, workers who are qualified for high-level technical and "white-collar" jobs, particularly through schooling at the college level, are eligible for urban residence in most locations (Chan and Zhang, 1999). There is evidence that this greater potential mobility has begun to pay off for the better educated. Zhang and Zhao (2002) show that returns to schooling, particularly for college graduates, have risen sharply; and that, by 1999, returns in non-public enterprises (e.g. the private and jointly-owned sector) approached those in state enterprises, whereas, until the early 1990s, returns had been far higher in the state-owned sector, albeit low by international standards (Zhou, 2000; Fleisher and Wang, 2003c).

Without barriers to movement, workers would seek jobs where pay is highest, other things equal, and firms would tend to locate their production where pay is lowest, and such adjustments would tend to reduce productivity and income differentials in China. There is evidence that even at the local level, interfirm worker mobility remains limited. Appleton *et al.* (2002) reports that by the end of 1999, *xia gang* workers laid off from SOEs, urban collectives, and local governments far outnumbered the "official" (registered) unemployed, contributing to a *de facto* urban unemployment rate of more than 8 percent. Those most likely to be laid off and also to experience the longest spells

of unemployment are the less educated, older workers, and female workers. The median spell of unemployment (including non-completed spells) was 10 months; the mean was 18 months. By comparison, in the United States from 1980 through 1993, the average annual completed duration of unemployment ranged from 10 to 14 weeks, while that in Canada ranged from 14 to 20 weeks (Baker et al., 1998).

Knight and Shi (2003) uses data relating to 1995 and 1999 from two urban household surveys conducted by the Chinese Academy of Social Sciences and the State Statistical Bureau. The surveys contain worker-provided information on firm profitability and other characteristics. They find that interfirm wage differences increased during the period among all workers, more so among low-paid workers than among high-paid workers. They infer that interfirm mobility of workers was low. Employees of loss-making firms evidently preferred to retain their jobs, accepting wage cuts, rather than seek other employment. This behavior is eminently understandable in the context of China's poorly developed social safety net (Dong and Ye, 2003).

Evidence of inefficient distribution of human resources across regions abounds. Fleisher and Chen (1997) provides evidence of immense interregional productivity gaps among Chinese provinces in the 1980s. Moreover change seems to be working in the wrong direction. Jones *et al.* (2003) reports that among 200 cities in China through 1999, policies that, *a priori*, are likely to raise productivity, such as openness to trade (e.g. special economic zones) and foreign direct investment, have also contributed to diverging income growth rates, thus raising income inequality. This contributes to pressures on the cities to absorb the millions of rural residents who seek urban jobs. Although there is evidence that regional segmentation has diminished since the mid-1990s (Poncet, 2003a and 2003b; Park et al., 2003), it is still an important force limiting China's growth.

A comparison of China with the United States is instructive in regard to regional integration. The United States is approximately the same geographical size as China and probably approaches equilibrium labor-market condition as closely as is likely to be obtained under conditions of moderate economic growth. Song et al. (2000) show that, in 1991, the coefficient of variation of per-capita GDP among 476 Chinese cities was 0.809, while the coefficient of variation of per-capita income was 0.259. In the late 1990s, the

coefficient of variation of output per worker among 100 United States metropolitan statistical areas was 0.161 and the coefficient of variation of per capita income was 0.149 (Sprint, 2003). In 2001, the coefficient of variation of per capita personal income among 318 United States metropolitan statistical areas was 0.199 (authors' calculations from United States BEA, 2003). There are two remarkable features in this comparison of China with the United States. One is that urban per-capita GDP in China had four times as much variation relative to its mean as that in the U.S. The other is that urban per capita income in China indicates more regional inequality than in the U.S., albeit far less inequality of income than of production per capita.

3.4 Unemployment insurance, health insurance, and pensions

Enterprise reform in urban labor markets has outpaced social reform that would facilitate the reallocation of workers from declining to growing enterprises. Labor resources released as SOEs and urban collectives seek to survive under increasingly hard budget constraints are wasted to society and suffer increasingly difficulty economic hardships. These unemployed and disenfranchised workers are a major source of political unrest as is widely known. But perhaps an equally serious distortion results when employed workers, observing the risk in seeking to change jobs, remain employed in low-productivity firms when they could increase their productivity and potential earnings under alternative employment. For China to sustain its remarkable growth record, labor resources released as enterprise efficiency increases must be transferred, through markets, to productive employment. We next consider the remaining policy issues inherent in labor-market reform.

As emphasized by Appleton *et al.* (2002), mass unemployment is a relatively recent phenomenon in China. While not directly comparable, the Great Depression of the 1930s created social disruption and unrest associated with mass layoffs and involuntary unemployment that was accommodated poorly under a variety of state programs. Federal legislation leading to the establishment of national coordination of state unemployment policies dates to that era. Just as in that era in the United States, the unemployment crisis

in China is forcing the Government to formulate policies to deal with this explosive issue. The situation illustrates the “crash-then-law” development of legislation emphasized by (Chen, 2003). As is much more thoroughly discussed by Dong and Ye (2003), unemployment insurance as a portable right available to all workers under clearly specified conditions does not exist in China. There is a hodgepodge of local and provincial arrangements that are proffered in varying fashions primarily to those holding *hukou* in the community providing the insurance. The principal burden of providing benefits falls on a combination of semi-private insurance companies funded by enterprise payments, the enterprises themselves, and local governments. Ironically, the Central Government opted out of guaranteeing unemployment benefits to most workers in the mid-1980s, as urban reform began to take off. As is well known, China faces immense challenges in shouldering the fiscal burden of paying the government’s share of unemployment benefits that result from the continued movement toward greater efficiency in government enterprises, and in dealing with the social unrest attributable to laid-off and retired workers whose nominal claims for unemployment compensation and pensions are eroded by financial inability and/or lack of will to fund them (Appleton *et al.*, 2002).

Appleton *et al.* (2002) find no impact of the size of unemployment benefits on the length of unemployment. They interpret this empirical result (which is at odds with the estimated impact of unemployment compensation on unemployment duration in most studies) to be evidence of the purely involuntary nature of unemployment in China and also to the unattractiveness of the size of unemployment benefits relative to the wages of employed workers. They also find that government employment agencies and former work units remain by far the most important channels through which unemployed workers seek and find new jobs. Informal channels appear to be used much less frequently, and when they are, prove to be less effective. One reason for this appears to be that when a work unit or government agency bears some financial responsibility for unemployment compensation, there is greater incentive to aid in the job-search process. Perhaps a lesson can be drawn from this observation in designing improved incentives for the relocation and reemployment of workers who become unemployed through layoff or for other reasons.

Migrant workers without urban *hukou* face a different set of constraints. Many migrants face unemployment whether or not they leave their rural homes, given severe land constraints in much of China's countryside. In other words, even though rural "employment" may be in principle the alternative for unemployed rural-urban migrants, the *de facto* alternative for those without either a regular job or urban *hukou* is likely to be subsistence on the urban fringe in migrant "villages," where residents make do as best they can, for example, as self-employed trash collectors and trash pickers in urban garbage dumps (Beja *et al.*, 1999). Although such subsistence activity might theoretically be viewed as a "solution" to the urban unemployment problem among migrant workers who literally find themselves between rocks and a hard place, there are genuine economic and social problems of external costs. Those costs manifest themselves in terms of health problems, schooling issues, and the social unrest that government officials know they cannot ignore without serious threat to social stability and their own survival. This is clearly an area in which rural land policies, provision of health care, and housing policy intersect.

4. The Impact of the WTO

China's accession to membership in the World Trade Organization will surely have important effects on the labor force and, through these effects, on the labor market. We hope it is not trite to emphasize that the major effects of WTO on workers will be derived through their effects on the reallocation of the production of goods and services more in line with China's comparative advantages. Given that comparative advantages will be identified through market signals and the distribution of production, we can only anticipate with uncertainty what reallocations are likely to occur. A further uncertainty is the impact of these production changes on the distribution of production across enterprise types, geographical regions, and rural and urban sectors. Further uncertainty arises from the unknown course of the *yuan*. Will China accede to pressure to float its currency in relation to the dollar and euro? If some flexibility is allowed in foreign-exchange markets, in which direction will the *yuan* move? Although it may be "common

knowledge” that the *yuan* is grossly undervalued, some say by as much as 40 percent, how certain can we be that floating it will be sufficient for it to move toward purchasing-power parity with the world’s major hard currencies? If China were to fully free up its foreign currency markets, might not “capital flight” balance or even exceed the impact of net foreign investment? (Gunter, 2004). When all these uncertainties are combined, the reliability of any forecasts we might make here is low indeed.

Having confessed to this uncertainty, we can proceed along the lines suggested by basic principles to hazard a few guesses. A major question is whether the labor-market disequilibria that date from the planning era and which have been exacerbated by a combination of rapid growth and persistent restrictions on interfirm, interregion, and rural-urban population movement, will be further exacerbated by the adjustments that are sure to result from China’s further integration into the world economy.

Perhaps the most interesting and controversial area is the impact of WTO on the rural-urban disequilibrium, surely China’s major deviation from optimal factor allocation. In the short run, China is viewed as labor-rich and land-poor, with both labor productivity and earnings in agriculture and rural areas in general being much lower than in urban areas. There appears to be some agreement that in the short run China’s ongoing agriculture reform that permits farm households increased freedom to allocate their resources profitably will push agricultural production away from grain production toward labor-intensive crops; access to world markets will raise revenues gained from exports of such items as tree fruits and other commodities that benefit from intensive cultivation (Huang et al., 2000; Johnson, 2000; Lin, 2000). Moreover, while rising domestic income levels will reinforce the trend toward increased domestic consumption of luxury fruits and vegetables and dairy products, WTO will increase foreign competitive pressure on domestic producers.¹¹ Currently, it is our judgment that rural-urban pressures are being reduced by China’s improved access to international agricultural markets.

Within the services and manufacturing sectors, we may expect both direct and indirect effects. Direct effects come from competition with imports and from new firms opening within China. There will obviously be changes in the mix of ownership categories, with an increase in foreign-owned firms that provide further competition for the state-owned group. Chen *et al.* (2003) corroborate the findings of Knight and Shi

(2003), namely that there exist significant barriers to interfirm mobility in China, particularly among firms of different ownerships types. Membership in the WTO will raise the presence of foreign-owned firms. If workers feel that taking jobs in foreign-invested enterprises risks the loss of traditional benefits available from SOEs, there will be less incentive to leave protected employment voluntarily.

Provision of an improved social safety net will permit labor markets to adjust more rapidly and the economy to reap greater benefits from the potential influx of new enterprises under WTO liberalization. Labor-market effects are likely to be concentrated within particular industries. For example, WTO accession is likely to put increasing pressure on major SOEs in the areas of financial services (e.g., Yeo, 2003). Direct effects will come as foreign-owned firms enter the financial services markets; demand will increase for domestic experts familiar with the language, local customs, and legislation. Some of these new employees may come from Chinese educated and currently working abroad, while others come from SOEs, which will be forced to meet the competition with higher pay or suffer loss of their most valuable workers, in turn forcing them to reduce their size and scope. Indirect effects will come, for example, from the lending policies of foreign-owned financial institutions. We may speculate that, if lending channels to township and village enterprises are enhanced both by the presence of more efficient financial institutions and/or that competitive pressure changes the performance of China's Rural Financial Cooperatives (Xie, 2003), rural non-agricultural employment opportunities will be enhanced.

In manufacturing, the entry of foreign-invested firms producing both for domestic consumption and for exports is predicted to expand sharply, e.g., in the automobile industry (Landler, 2003). To the extent that Volkswagen, General Motors, Daimler-Chrysler, Nissan, and others introduce their management skills and technology to China's low-cost labor, job opportunities and wages in urban manufacturing will increase. However, China's state-owned automobile manufacturers will suffer unless they form profitable joint ventures with the foreign interlopers. How these forces play out will depend largely on the remaining barriers, *hukou* and otherwise, to interfirm job changes and intercity and interregional labor mobility. To share in the benefits from greater employment opportunities, current employees of SOEs need to be able to take the new

and better jobs without totally exposing themselves to the risk of unprotected unemployment, losing all health-insurance coverage, and so on.

5. Conclusions

We have sketched developments in labor-market reform over the past two and a half decades in China. Although a fully functioning labor market approaching the flexibility of those of the major industrial nations remains to be achieved, there have been major successes. Among the most important accomplishments, there has been a gradual removal of the planning framework in the organization of labor within and among enterprises. The dominant role of rural communes in agriculture has disappeared, and state and collective enterprises in the urban sector are diminishing in their relative importance, both in terms of output and employment. Multiple forms of ownership and enterprise organization have emerged, and the role of private and joint-venture companies is growing and will accelerate with China in the WTO. Moreover, there have been crucial and fundamental changes in work incentives for rural families, and for both managers and employees of enterprises. These include the removal of lifetime security for urban workers and the introduction of wage and managerial contract schemes more compatible with profit-maximization and cost-minimization. State-owned enterprises are increasingly subject to hard budget constraints. In addition, there has been gradual but incomplete movement away from local self-sufficiency toward integrated product and labor markets.

Nevertheless, there are still serious obstacles that stand in the way of smoothly functioning labor markets and often exacerbate the growing income inequality attributable to the movement toward a market economy. Most significant, *hukou* remains a critical barrier to rural-urban and inter-city integration. There is much evidence of village, city, and provincial border effects attributable both to *hukou* restrictions and to local protectionism along with the inability or unwillingness of the Central Government to enforce existing laws and regulations. In addition, there remain barriers to changing the ownership structure of firms, especially from state-owned and collective to private ownership, as well as acquisitions across city and regional boundaries, due to major

weaknesses in the social safety net: in particular, unemployment insurance, health insurance, and the enterprise-based pension system. Another major deterrent is the inadequate development of complementary markets, particularly the housing market.

Given these perspectives, what are the key areas for further reform? We emphasize two that have high policy significance: local protection and coordination of reform. First, if local protectionism is to be reduced and ultimately eliminated, the Central Government must understand the incentives that local and provincial governments need to accept nationwide laws and regulations. In this regard, there is a serious need for research to identify relevant interest groups and the true objectives of local governments. We need to know who are the potential winners and losers from such specific reforms as the removal of mobility restrictions. Only by understanding the answers to these questions can incentive compatible rules be designed that will induce the desired responses from the involved parties. The Government should be prepared to compensate losers appropriately to overcome resistance to existing and new laws and regulations. The benefits derived from successful policy reform would provide incentives for all parties to implement the new rules and promote more efficient labor market institutions.

Second, reform must be coordinated to speed up the progress towards more efficient labor markets. Sensible deregulation in one area not only generates benefits in that area but also creates the need for reform in other areas. An outstanding example is the need to coordinate reform of the social safety net, redeployment of SOE workers, and provision of housing. In rural markets, procurement obligations and choices of individual employment must be liberalized, and land tenure reform should be considered in conjunction with migration decisions.

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Table 1. Distribution of the Rural Labor Force among
Economic Activities, 1978-2000 (millions)

Year	Total Rural Laborers	Agricultural Laborers	Nonagricultural Laborers	
			Total	TVE Workers
1978	306.4	284.6	21.8	22.2
1979	310.2	278.3	31.9	23.8
1980	318.4	298.1	20.3	25.4
1981	326.7	289.8	36.9	25.9
1982	338.7	300.6	38.1	27.7
1983	346.9	303.5	43.4	29.3
1984	359.7	300.8	58.9	49.2
1985	370.7	303.5	67.2	67.2
1986	379.9	304.7	75.2	77.0
1987	390.0	308.7	81.3	85.7
1988	400.7	314.6	86.1	93.0
1989	409.4	324.4	85.0	91.3
1990	420.1	333.4	86.7	90.2
1991	430.9	341.9	89.0	93.7
1992	438.0	340.4	97.6	103.3
1993	442.6	332.6	110.0	120.6
1994	446.5	326.9	119.6	117.6
1995	450.4	323.3	127.1	125.5
1996	452.9	322.6	130.3	131.7
1997	459.6	324.3	135.3	127.7
1998	464.3	326.3	138.0	122.7
1999	469.0	329.1	139.9	127.0
2000	479.6	328.0	151.6	128.2

Data Source: SSB (various years). Note: the number of TVE workers may exceed rural nonagricultural laborers because some TVEs engage in agricultural production.

Table 2. Distribution of the Urban Labor Force by
Types of Ownership, 1978-2000 (millions)

Year	Total Employed Persons	SOE Workers	Collective Workers	Other Types of Ownership
1978	95.2	74.5	20.5	0.2
1979	100.0	76.9	22.7	0.4
1980	105.2	80.2	24.3	0.7
1981	110.5	83.7	25.7	1.1
1982	114.3	86.3	26.5	1.5
1983	117.5	87.7	27.4	2.4
1984	122.3	86.4	32.2	3.7
1985	128.1	90.0	33.2	4.9
1986	132.9	93.3	34.2	5.4
1987	137.8	96.5	34.9	6.4
1988	142.7	99.8	35.3	7.6
1989	143.9	101.1	35.0	7.8
1990	147.3	103.5	35.5	8.3
1991	152.6	106.6	36.3	9.7
1992	172.4	108.9	36.2	27.3
1993	175.9	109.2	33.9	32.8
1994	184.1	112.1	32.9	39.1
1995	190.9	112.6	31.5	46.9
1996	198.2	112.4	30.2	55.6
1997	202.1	110.4	28.8	62.8
1998	206.8	90.6	19.6	96.6
1999	210.1	85.7	17.1	107.3
2000	212.7	81.0	15.0	116.7

Data source: SSB (various years).

Table 3. Policies and Regulations on Rural Labor Mobility

Year	Policy Initiatives
1983	Document No.1 of the Central Committee of the Chinese Communist Party (CCCCP): encouraged the emergence of specialized households in nonagricultural activities, including long-distance transport and marketing of commodities; permitted co-operative ventures and employment of labor (Ash, 1988).
1984	“Report on Creating a New Situation in Commune and Brigade-run Enterprises” by the CCCCCP and the State Council: outlined a new development strategy targeting industries as the focus for future rural development; absorbing rural labor was one of the main objectives (Findlay et al., 1994).
1985	Document No.1 of the CCCCCP: permitted farmers to work and establish businesses in nearby towns, conditional on financial capability and own provision of food grain. This deregulation officially permitted labor mobility in rural regimes.
1985	State announcement: the change from mandatory production plans and procurement quotas to purchasing contracts negotiable between the state and farmers (Lin, 1992). Implementations varied across regions and over time.

Table 4. Real per Capita Income for Rural and Urban Residents
 (Units: nominal yuan per year; Ratio: rural=1)

Year	Urban	Rural	Ratio of
	Per Capita Income (1)	Per Capita Income (2)	Urban to Rural Income (3)
1978	454	134	3.4
1979	523	160	3.3
1980	560	190	3.0
1981	567	219	2.6
1982	597	261	2.3
1983	620	296	2.1
1984	690	330	2.1
1985	692	358	1.9
1986	784	360	2.2
1987	801	369	2.2
1988	783	370	2.1
1989	778	343	2.3
1990	855	374	2.3
1991	916	378	2.4
1992	989	399	2.5
1993	1073	413	2.6
1994	1133	443	2.6
1995	1179	487	2.4
1996	1217	551	2.2
1997	1252	584	2.1

Data source: SSB (various years) adjusted by methods described in Zhang *et al.* (1994) and sector-specific price deflators.

Notes:

¹ The objective of this strategy was to achieve rapid industrialization by extracting agricultural surplus for capital accumulation in industries and for urban-based subsidies. See Knight and Song (1999) and Yang and Cai (2003) for up-to-date descriptions of the origin and evolution of China's rural-urban divide.

² Quota prices for grain, oil crops, cotton, sugar crops, and pork were increased by an average of 17.1 percent. In addition, the premium paid for above-quota sale of grain and oil crops was raised from 30 percent to 50 percent of the quota prices. For details of these price changes and agricultural price adjustments in the following years of reforms, see Sicular (1988).

³ In 1978, the urban sector employed 95 million workers while the rural sector had a labor force of approximately 306 million. By contrast, the total value of fixed assets in the state-owned enterprises (primarily urban) counted for 449 billion yuan while the value of the fixed assets in agriculture was only about 95 billion yuan (SSBa 1993; Perkins and Yusuf 1984). These numbers indicate a capital/labor ratio of 4726 yuan per urban worker and a ratio of 310 yuan per rural worker. The capital concentration in the urban sector is more than 15 times that of the rural sector.

⁴ This is the primary approach taken by the series of World Bank studies that assess the effects of agricultural pricing policies (see Krueger et al., 1991).

⁵ See Yang and Cai (2003) for detailed descriptions for making these adjustments. Three specific points are worth noting: (1) the methods used for computing urban non-wage incomes are based on a study by researchers at the SSB (Zhang et al., 1994). The lack of information on non-wage incomes in recent years is the reason the period ends in 1997. On the rural side, incomes include value of products for own consumption. (2) In the absence of area-specific deflators, aggregate consumer price indices for rural and urban sectors are applied to compute real incomes. (3) Per capita income differs from per worker earnings. But because of limitations on data, we are unable to adjust for dependency ratios to compute per worker earning. Recent data (SSB, 2001) indicate that the number of dependants per rural laborer were 1.74, 1.64, 1.56 and 1.53 in years 1985, 1990, 1995 and 2000, which do not differ greatly from the comparable numbers of 1.81, 1.77, 1.73 and 1.86, respectively, per urban employee. Therefore the per capita income gap approximates sectoral per worker earning.

⁶ See Yang and Cai (2003) for an analysis of the policy factors that may have influenced the changes in rural-urban disparity over time.

⁷ These results are consistent with other empirical studies. See Nolan and White (1984) for estimates of output per worker in agriculture and state industries, and Meng (2000) for the productivity gap between rural agricultural and nonagricultural sectors.

⁸ As much as we would like to use more recent data for policy analysis, the choice of time period is constrained by multiple factors. Although the SSB has released input-output data for all three sectors since 1986, starting in 1993, the statistical yearbooks have changed the reports of several economic variables for rural enterprises, e.g. replacing gross sales information with value-added measures. Therefore, we conduct the policy experiment for 1992 because of the availability of parameter values from Yang and Zhou (1999) for that year and issues of data consistency.

⁹ In their study, white-collar jobs include professional, managerial and clerical employment, while blue-collar jobs include employment in wholesale trade, retail services, construction, production and other occupations. The percentage of rural migrants in white-collar jobs is 3.36, while the predicted value is 9.25; the corresponding percentages for urban residents are 36.69 and 14.49.

¹⁰ Interregional integration of these markets across provincial boundaries remains incomplete (Poncet 2003a).

¹¹ A quick Google search for two topics, “China exports apples,” and “China’s” dairy industry” yields on the first pages of results alone, references to reputable sources that emphasize both the effects of increased domestic demand, increased import competition, and increased exports due to changing agriculture specialization.