Problems of China's Rural Labor Markets and Rural-Urban Migration*

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## 1. Introduction

More than two decades into an era of sustained reform, the distribution of China's labor force has experienced fundamental changes. At the inception of reforms in 1978, an overwhelming majority of the labor force were either employed in urban state-owned enterprises (SOE) or as agricultural workers in rural communes.  By the end of the 1990s, about one third of the rural labor force had moved into nonfarm 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 appropriate government agencies.  The fundamental shifts in the distribution of employment across sectors and ownership categories that have occurred under reform require an allocative mechanism far more flexible and sensitive than any nations have ever achieved with administrative controls.  The emergence of a functioning labor market has been essential to this transformation, and this is recognized by the government. A series of reform policies and deregulations were instrumental in the emergence of labor markets. But due to the incomplete nature of reforms, 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 Chinese government, and the way in which laws, regulations, and institutions evolve under 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 two questions raised by China's ongoing economic reforms in the context of the labor force and labor markets:

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(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 reforms? In dealing with these questions, we treat the progress of economic reforms to date and how they have led to the need for radical changes in labor-market laws and regulations and, most important, how these laws and regulations have been applied and the implications for the allocation of labor. We also discuss the continuing labor-market problems and the policy choices that face policy makers today.

We concentrate our discussion on China's rural labor markets and on the severe problems of accommodate increasing pressure for rural-urban migration. Under planning, there was a formal segregation of the rural (agricultural-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 fact underlying Chinese labor-market problems and policies today. It has led to major problems of incentives, mobility, wage differences, and social policy between 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 topics 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 disequilibrium between them.

## 2. Rural Labor Markets: Background

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 consisted of 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 market 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 procurements 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 nonagricultural activities within rural regions.

## 3.  Rural Labor Markets:  The Reforms

Market-oriented development in rural China started with a package of three reforms: the replacement of production teams with households as basic production units (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 for the emergence of labor markets in rural China.

The change from communes to a household-based farming system began in 1979 in Anhui province and was essentially completed nationwide in 1983. This institutional change, which introduced marginal compensation for family work effort, solved the labor incentive problems in the communes, resulting 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 in which the state 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 HRS increased families' command over their productive resources including labor, farmers not only had incentives, but also some freedom in seeking nonfarm 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 nonfarm production. Concurrently, the opening of rural markets not only accommodated the sale of nonfarm products, but also facilitated the purchase of inputs for rural industries. It is evident that 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. The input and output markets had emerged; households were conscious of their alternative opportunities; and they had incentives to seek employment in the nonfarm sector with higher earnings. There is little question that marginal productivity of labor in rural industries exceeded the levels in the cropping sector, indicating overallocation of labor to agriculture (Putterman, 1993; Yang, 2004).

Table 3 summaries 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, output by 7 percent, cotton-sown area 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 a year of strong growth in 1984 (see Table 1). These dramatic changes in policies and in farmers' responses marked the beginning of sustained expansion in nonagricultural activities.

Indeed, the fundamental changes in the distribution of labor force shown in Table 1 have been the main feature of the rural labor market in China since the inception of reform (e.g., de Brauw et al., 2002). 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 nonagricultural activities increased by about 27 percent per annum, from 21.8 to 151.6 millions. Table 1 also shows how the increment of rural labor supply was absorbed for the entire period. The remarkable statistic is that approximately 75 percent of the increment found employment in the nonagricultural sector, where a majority of that total went to the Township and Village Enterprises (TVE). Empirical evidence shows that for the period 1986-1995, the rapid expansion of nonfarm activities contributed to 43.6 percent of the total farm income growth for a large sample from Sichuan province (Yang, 2004).

Rural labor movements are not restricted to local jobs. In fact, rural-to-rural mobility, defined as employment of labor force in rural villages other than workers' home villages, represents a rapidly growing component in recent years. According to the study by Lohmar and Rozelle (2001) based on a nationally representative survey of 215 villages, rural-to-rural migrant workers accounted for 1 percent of rural labor force in 1988 (about 2 million), but grew quickly to 5 percent in 1995 (about 12.9 millions). In 1995, the proportion of workers from other villages accounted for 62 percent in rural private enterprises and 46 percent in collective enterprises. Moreover, incoming labor from other villages did not negatively impact the nonfarm employment opportunities of local residents or the wages they receive.

## 4. 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 reforms 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 reforms 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 nonagricultural) 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 flexibility in reallocation 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, not even

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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 rationing 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).

As of today, *hukou* reform is incomplete and its progress varies across provinces and even cities. In general, local situations fall into one of the 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, or *hukou* status, and they are called the "floating population." Estimates on 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 State Statistical Bureau (SSB) and Ministry of Labor and Social Security (MOLSS). In 1983, the total floating population was approximately 2 million. For the period between 1997 and 2000, the annual estimates for across-township migrants of whom the

overwhelming majority were laborers were 38.9, 49.4, 52.0, and 61.37 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 the floating population is a significant component of China's labor force.  In 2000, it accounted for about 11 percent of the total labor force in China.

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

## 4. Evidence of Remaining Distortions and Fragmentation

4.1 Problems within 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 nonagricultural 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 the period 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 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 MPL between the agricultural and nonagricultural sectors corroborate the above evidence on wages. Using a production function approach, Wang (1997) estimated the MPL for agricultural and nonagricultural sectors, where the latter includes both TVEs and other types of rural industrial enterprises. The gap fell slightly during the period 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 the period 1987-92 using provincial level data, Yang and Zhou (1999) also found an increasing gap in agricultural and nonagricultural 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 the years 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 reforms, in 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.


4.2. Rural-Urban Income Differences

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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 3 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 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.[4] 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.[5]

Government policies that push for speedy industrialization by discriminating against agriculture may lead to rural-urban income disparity in 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 nonagricultural 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

nonagricultural 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.   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 diminished barriers to migration have contributed to the decline in the rural-urban income gap in China since the middle 1990s. .  As Poncet (2003) reports, a major barrier to the integration of China's labor markets occurs at provincial borders.  Her investigation on rural-urban migration flows use 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.  She estimates the "border effects," which is the additional cost of migration associated with crossing provincial borders.  The study indicates substantial border effects that on average reduce interprovincial migration to less than 10% of what it would have been, given the effect of distance-related and other costs of rural-urban migration.  The decline in interprovincial border barriers for the two periods, 1985-90 and 1990-95, helped reduce rural-urban income disparity.

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. As Johnson (2003) reports, 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

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the location of either labor or capital, so long as factor ratios were appropriate. Moreover, it is well-known that in the classic Heckscher-Ohlin framework, interregional trade would substitute for interregional migration in equalizing marginal products. Poncet (2003) 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 reducing interregional barriers to trade within China increase, rather than reduce, the potential gains from freer labor migration. In a related study, Au and Henderson (2002) model and estimate urban agglomeration economies in a production-function framework for 206 cities in China. Their estimates yield a familiar ∩-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 being undersized, resulting in substantial productivity losses.

4.3 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. Then, 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 of 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 the period 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.[6]

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 is transferred from agriculture to rural and state industries, how much would output increase?[7]

We have conducted a policy experiment based on partial equilibrium analysis 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 given 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. These results are supported in an independent study by Zhang and Tan (2003). In their framework consisting of four sectors (agriculture, urban industry, urban service, and rural nonfarm production), the transfer of 1, 5, and 10 percent of labor out of agriculture and reallocating them to the other industries would result in 0.7, 3.3, and 6.4 percentage increases in the aggregate output.

However, these results do not necessarily imply that output gains can be realized instantly from labor reallocation, especially when there is unemployment and underemployment in the urban/state sector. Soft urban demand conditions for rural workers may affect the timing of realizing potential output gains. Moreover, our aggregate partial equilibrium analysis does not provide insights into the micro-level management of the urban/state sector. The ownership structure of urban enterprises, their incentive mechanisms, the substitutability of productive factors and the training of new employees all affect the capacity to absorb rural workers. The provision of city infrastructure could be another potential constraint.

We also note that, for several reasons, those percentage increases in output are likely to represent upper bounds of 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, moving costs of labor transfers can be significant. And third, special skills are usually required for industrial jobs, and therefore costs of training 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 reforms.

4.4 Institutional Barriers and Policy Challenge*s*

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), under the HRS farm families have land-use rights 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 land earnings 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 destination when moving away from agriculture. As a result, Chinese farmers have less incentive to

engage in family migration and are more willing to split family labor supply between farm and nonfarm employment. This division of time is a second-best solution under the existing land arrangements that takes advantage of higher nonagricultural wages and avoids the loss in land values, as Yang (1997) argues. This is a factor that creates differential rural-urban labor earnings, as well as a wage-productivity gap between farming and nonfarming sectors, as documented earlier.

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. Although there exists other land tenure systems, an overwhelming majority of the rural households have responsibility land (e.g., Brandt et al., 2002). When rental markets are restricted, the obligation of delivering procurement quota would reduce the flexibility of family labor allocation to alternative employment. In particular, the grain quota policies could create a wage gap between rural agricultural and nonagricultural sectors, as section 4.1 points out. Hence, further reforms in grain procurement systems and the property rights of rural land are needed.

Local protection is also a significant issue. For instance, a rural worker currently employed in the enterprise of another village does not receive an allocation of homestead or other housing arrangements, even if the job is permanent, thus imposing high costs on the migrants. In addition, workers from a village often earn much higher wages than outsiders after controlling for productivity-related characteristics (Yao, 1999). Serious segmentation still exists in rural labor markets (Fleisher and Wang, 2003a and 2003b). Recently, the Development Research Center of China's State Council conducted a nationwide survey of rural and urban enterprises on local protection (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 varieties. 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 of local

government in employment and wage determination that would lead to increased labor-market efficiency.

While reducing mobility barriers is important for factor market development, an alternative approach of raising rural labor productivity is to create nonfarm job opportunities within commuting distance of village residents (Johnson, 2002). As Johnson suggests, the required capital investment of moving rural workers and their families to urban jobs is enormous---much higher than creating nonfarm jobs in rural regions. This is because capital investment is required not only for the construction of housing but also the public costs of creating new urban communities, such as roads, public utilities and schools. In contrast, large savings are possible if jobs are created near the homes of rural workers. Johnson also points out that, in order to make villages attractive places to live, it is necessary to provide basic amenities to rural residents, including tap water, home toilets, affordable electricity and quality access to television signals. Other complementary policies include increasing educational investment and raising the quality of rural schools.

Improving labor market linkages across rural and urban regions remains an important challenge. Micro empirical analysis has 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, segregation in the urban labor market not only has direct implications for the loss of aggregate output but also worsens the economic position of those who are already poor, which in turn may contribute to social instability.

The lack of correct *hukou* subjects the "floating population" not only to the risk of various arbitrary actions by local authorities carried out in the name of preserving social order and public safety, but also 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 grounds that they provide inferior schooling or are safety hazards (which are probably true claims; see e.g., Xie, 1999).

None of what we have said is meant to deny that there are in fact costs of providing public services for migrants, and these costs must be borne by the workers themselves, by their employers, by government, or some combination of them. 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 that the current system provides over an increasingly mobile population is beyond our scope.


## 5. Conclusions

We have outlined the process of labor-market reforms in rural China over the past two and a half decades. Although a fully functioning labor market 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 rural labor force; the dominant role of rural communes in agriculture has disappeared. Rural families have gained flexibility in allocating their labor to farming, rural nonfarm jobs, and temporary employment in cities. Multiple forms of ownership and enterprise organization have emerged. Moreover, there have been critical and fundamental changes in work incentives for rural families and both managers and employees of rural enterprises.

Nevertheless, there are still serious obstacles that stand in the way of smoothly functioning labor markets and which often exacerbate the growing income inequality attributable to the movement toward a market economy. Most significant, *hukou* remains a critical barrier to rural-urban integration. There is much evidence of village and province border effects attributable not only to *hukou* restrictions, but also to local protectionism and the inability or unwillingness of the central government to enforce existing laws and regulations. Incomplete reform in the property rights of rural land, grain quota policies and various unequal treatments of rural and urban workers remain to be obstacles to labor market efficiency.

Given these perspectives, what are the keys for further reforms? We emphasize two areas that have high policy significance, local protection and coordination of reforms. 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 acquiesce to nationwide laws and regulations. In this regard, there is a serious need for research to identify

relevant interest groups and the objectives of local governments. We need to know who are the potential winners and losers from specific reforms, such as removal of a mobility restriction. 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 reforms would provide incentives for all parties to implement the new rules and promote more efficient labor market institutions.

Second, reforms must be coordinated. Sensible deregulation in one area not only generates benefits in that area but also creates the need for reforms in other areas. An outstanding example in rural markets is that procurement obligations and choices of individual employment must be liberalized, and land tenure reform should be considered in conjunction with migration decisions. Well-coordinated timing of individual reform programs will certainly speed up the progress towards labor market efficiency.

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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 CCCCP 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 CCCCP: 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 Per Capita Income (1) | Rural Per Capita Income (2) | Ratio of 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. In 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 of the rural sector.

[4] 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 makes the period ends in 1997. On the rural side, incomes include value of products for own consumption. (2) In 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 earning. But because of limitations on data, we are not able 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 for urban employee. Therefore the per capita income gap approximates sectoral per worker earning.

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

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

[7] In principle, one could carry out similar exercises of computing marginal productivity of capital, comparing their magnitudes across the sectors, and inferring output gains from optimally reallocating capital. But for empirical analysis this approach is not feasible because in Chinese official statistics different measures of capital are used across the sectors---number of tractors is a common measure of capital in agriculture, while fixed asset is used for industry.

They are not directly comparable. Consequently we focus the attention to the consequences of labor reallocation.

[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, such as 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.