Employment Strategy Papers

Employment in China: recent trends and future challenges

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Preface

This paper has two objectives. The first is to develop a dataset that can be used to analyse employment and labour market trends in China. This is necessary because the statistics available from the published sources are difficult to use for analysis. Data from different sources are often mutually inconsistent. Besides, because China's statistical system uses non-standard categories, data are sometimes difficult to interpret and cannot be easily compared to those for other countries. One part of this paper, therefore, is devoted to a serious scrutiny of the available statistics in an effort to develop an appropriate dataset for the period 1990-2002. This dataset is appended to the paper so as to make it available to other researchers.

The second objective of the paper is to use the dataset to study the employment and labour market trends in a period when China achieved a growth miracle and emerged as a global economic power. The main findings are as follows. During 1990-96, employment conditions showed significant improvement in both rural and urban areas. In the subsequent period (1996-2002), rural employment conditions continued to improve but urban employment conditions substantially worsened. The basic reason lay in the growing inability of production units (family farms in rural areas and state-owned enterprises in urban areas) to carry the surplus labour that past policies had forced them to accumulate. The process of shedding of surplus labour by production units, triggered by the reforms of state-owned enterprises and the relaxation of control over rural-urban migration in the second half of the 1990s, had radically different consequences for urban and rural areas. In urban areas, formal employment declined, unemployment emerged as a major problem and there was rapid growth of irregular employment (of both rural migrants and workers laid-off from state-owned enterprises). In rural areas, employment in township and village enterprises (which had not accumulated surplus labour) continued to grow while out-migration reduced surplus labour in family farms.

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Acknowledgement

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1. Introduction

The growth performance of China's economy in the 1990s has been extraordinary by any standard. Between 1990 and 2002, GDP per capita grew at a rate of 8.3 percent per annum. This phenomenal growth was driven by an industrial revolution that has made China a manufacturing powerhouse. The industrial revolution, in turn, was made possible by China's huge success in expanding trade with the external world. The share of exports in GDP increased from less than 18 percent in 1990 to nearly 29 percent in 2002 and the share of manufactures in total merchandise exports increased from 72 percent to 90 percent.

What have been the effects of such rapid industrialisation and economic growth on employment in the country? No widely accepted answer to this question is available from the existing literature. Indeed, there are not many studies that even ask the question. There are good reasons for this; the most important is that the available statistical data on employment suffer from a number of important limitations and are rather difficult to interpret. Recent studies, therefore, have been more concerned with scrutinising the available statistical data than with using them for analysis.[1] In fact, establishment of a consistent set of employment statistics is an objective that we too cannot help pursuing in this paper.

Despite the difficulties, however, it is obviously worthwhile to try to understand how China's extraordinarily rapid economic growth affected the growth and structure of employment in the country. This is not just because employment has long been a major concern for China's policy makers and will remain so in the foreseeable future. It is also because China's experience is of much interest to other labour-abundant developing economies that face major challenges in the area of employment.

The objective of this paper is to analyse the available statistical data in an effort to assess the employment trends during the period 1990-2002. The paper is organised as follows. In the following section, the available statistical data are scrutinised so as to develop a usable dataset. The reforms that had a bearing on the evolution of employment conditions, and hence help interpretation of the statistical data, are also briefly considered. Given that China's employment statistics use categories that are not directly comparable to those commonly used in the literature, a classification scheme for organising the data into standard categories is also developed in this section. The database thus developed is used, in section three, to analyse the main trends in employment, unemployment and wages. The main conclusions and the challenges they imply for China's policy maker are stated in the final section.

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[1] Even the scrutiny has tended to be rather narrowly focused on deriving acceptable estimates of the rate of unemployment in urban areas. See, for example, Knight and Xue (2004) and Giles, Park and Zhang (2005). The few studies with a broader focus include Fang (2004), Rawski (2002) and Brooks and Tao (2003).

2. The preliminaries

The data

There are two main sources of statistics on employment in China. The labour force survey (LFS), redesigned as the Sample Survey on Population Changes in 1996, provides data on economically active population and employment for the whole country (excluding Hong Kong, Macao and the Taiwan province) as well as on distribution of employment by broad sectors.[2] It defines economically active persons as those aged 16 years or more who had either engaged or been available for engagement in gainful activities for at least an hour during the reference week. The establishment survey (ES), now called the Comprehensive Labour Statistics Reporting System, provides detailed data on employment in urban independent accounting units including officially recognised and registered private and individual businesses.[3] It defines employed persons as those who work in various urban establishments on a regular basis and receive wages and/or other forms of income as remuneration for work. The National Bureau of Statistics (NBS) directly conducts the LFS and collaborates with the Ministry of Labour and Social Security (MOLSS) in conducting the ES.

There are two other sources of data that must also be taken into account in any analysis of employment in China, even though the data from these are not always easily reconciled with the data from the LFS and the ES. The population census of 2000 generated some broad aggregates on employment that substantially differed from the aggregates emerging from the LFS, which had hitherto used the 1990 census as the benchmark. Using the information from the census of 2000, the NBS has recently published "adjusted" estimates of labour force and employment for the period 1990-2002. The method of adjustment, however, is not known and it remains unclear as to how these "adjusted" totals are to be made consistent with the detailed "unadjusted" statistics from the LFS and the ES. The second source is the Ministry of Agriculture (MOA), which produces annual statistics on employment in "township and village enterprises" (TVEs). These data also appear to be inconsistent with the statistics on rural employment generated by the LFS.

These problems of inconsistency of data must be resolved in some manner before any analysis of the evolving employment situation can be attempted. With respect to the problem of inconsistency between LFS and census statistics, our judgement is that the "unadjusted" LFS data essentially leave out of account two categories of workers: (i) the rural migrant workers who find irregular employment mainly in urban areas but also in rural areas outside the places of their long-term residence; and (ii) the urban workers who, having been laid off from state and collective enterprises, find irregular employment in urban areas.[4] This judgement, the basis for which is elaborated in Appendix 1, guides the use of the "adjusted" and the

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[2] These surveys have been conducted four times a year till 1996, three times a year from 1996 to 2001 and twice a year since then. The data are published on an annual basis.

[3] The survey is conducted four times a year and the data are published on both annual and quarterly basis.

[4] Fang (2004) also makes a similar judgement.

"unadjusted" LFS data for analysis in this paper. As for employment in TVEs, the figures provided by the MOA appear to be serious overestimates; if we take them as correct, the estimates of total rural employment, generated by the LFS, would have to be serious underestimates, a possibility that we reject.[5] Our judgement is that the overestimation occurs because of confusion over the definition of urban areas. The MOA probably counts the collective-owned enterprises, located in large county towns, as TVEs while the ES count them as urban collective enterprises; the result is double counting. This judgment allows us to derive estimates of employment in TVEs that are consistent with the "unadjusted" estimates of rural employment generated by the LFS.

There are two other problems with the data that need to be sorted out before analysis can be attempted. First, from 1994 onwards, a substantial number of persons from Hong Kong, Macao and Taiwan province as well as from foreign countries have lived and worked in mainland China. We need to exclude such persons from the estimates of the employed persons since our objective in this paper is to study the trends and patterns of employment of the mainland Chinese workers. As it happens, the ES data can be used to estimate the number of persons from outside mainland China who, we can safely assume, work in formal enterprises in urban areas.[6] We are thus able to work out estimates of employment of mainland Chinese persons in different segments of the economy and these are the estimates that we use for our analysis. Second, a fairly large and growing number of persons in rural areas are shown by the LFS to be engaged in unspecified activities called "others". They apparently include persons engaged as teachers in schools run by local communities, persons engaged in religious occupations, etc. For lack of a better alternative, we regard these persons as self-employed in services.

The dataset that emerges after all the adjustments have been made is set out in Tables A2.1 – A2.8 in Appendix 2.[7] Much of the analysis in the paper is based on this dataset.

The regulatory reforms

Prior to the onset of economic reforms in 1978, labour policy in China had the explicit objective of guaranteeing employment to all workers. The objective was pursued through direct allocation of jobs, administrative control of remuneration and severe restrictions on migration. In rural areas, all workers were members of production teams and were assigned either to agricultural work at the team level or to non-agricultural work at brigade or commune level.[8] In urban areas, all workers were assigned jobs in units and enterprises, which were either state-owned or collective-owned (private enterprises were not allowed); the employing units themselves had very little control over recruitment or the wage bill just as the job-seekers had very little say in where they worked. These methods of assigning workers to

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[5] Rawski (2002) states that the 1995 industrial census revealed very serious overestimation of employment and output by the MOA.

[6] The data on "persons employed in various units" include persons from outside mainland China while the data on "staff and workers" exclude them.

[7] Apart from the adjustments mentioned above, a few other minor adjustments were also necessary to ensure full consistency. These adjustments are explained in the notes to the Tables A2.1 – A2.8.

[8] See Ghose (1984), Khan (1984) and Lee (1984) for detailed discussions of work organisation under the commune system.

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jobs were combined with strong measures for controlling migration in search of work. Each person was registered as a resident of a particular locality, rural or urban, and the registration status could not be easily changed. Migration without change of registration status was not possible because the registration status was the basis for a person's access to locally provided food rations, education and health services, and social security.

These systems of job allocation and migration control effectively prevented open unemployment from emerging but led to steady accumulation of surplus labour in production units in both rural and urban areas with unfavourable consequences for work-effort, labour productivity and output growth. The reforms initiated in 1978 created conditions for gradual dismantling of both systems. In rural areas, a new "responsibility system" was introduced to reorganise agricultural production. This effectively brought back family farming under what could be characterised as a fixed-rent tenancy system, the rent being collected by the production team (or village) authorities on behalf of the state. As a natural consequence, the non-agricultural units at brigade and commune levels, renamed "township and village enterprises" (TVEs), gained the right to directly recruit labour on a contract basis and to determine wages.[9] Moreover, a variety of non-state enterprises were allowed to emerge and these too could directly recruit labour on a contract basis.

In urban areas, the reforms began with the granting of some measure of autonomy to both job seekers and enterprises.[10] In the early 1980s, job seekers were allowed to look for work in state, collective or newly recognised private enterprises. At the same time, the state and the collective enterprises were granted limited rights to directly recruit labour and to adjust wages by instituting bonus and piece rate systems. Starting in the mid-1980s, the state and the collective enterprises were allowed to offer fixed-term contracts to new recruits. But the real impetus for replacement of lifetime tenure by contracted tenure came from fresh reforms introduced in 1994.[11] A minimum wage legislation was also introduced in 1994 and minimum wage standards have since been established in all provinces. Starting in the mid-1990s, the state-owned enterprises were allowed to lay off workers with lifetime tenure, subject to the condition that "re-employment centres" (RECs) were established to provide the laid-off workers with unemployment benefits, retraining and assistance in job search.[12] At the same time, the government began to eliminate or substantially reduce subsidies to state-owned enterprises and to allow bankruptcies.

As the economic reforms progressed, the registration system became increasingly unworkable as a mechanism for controlling migration. With the elimination of food rations and free education and health services, the economic constraints on migration disappeared. On the other hand, given the large inequalities between urban and rural areas as also between regions, there were strong incentives for migration in search of work and the administrative authorities initially turned a blind eye to such movements. Beginning in the mid-1990s, migration for work began to be officially regarded as permissible and a system of granting urban registration to rural migrants was introduced. The official system still remains restrictive but,

[9] See Ghose (1987) for a detailed discussion of these points.

[10] A discussion of the reforms is available in Brooks and Tao (2003).

[11] See Woo (2002) and Brooks and Tao (2003) for discussions and data.

[12] More recently, an unemployment insurance fund for urban workers has been established and the RECs are being phased out. See Fang (2004) for a discussion.

in practice, people are no longer prevented from living and working in places other than those of their registered residence.

Categories of employment

A major consequence of the reforms was a rapidly growing diversification of enterprises and forms of employment. Even as late as in 1990, bulk of the urban employment was in state and collective enterprises and bulk of the rural employment was in TVEs and in small family farms that emerged under the "responsibility system". Through the 1990s, a wide variety of enterprises and work-units emerged and grew in both urban and rural areas. By the end of the 1990s, apart from state and collective enterprises (which had ceased to be the dominant employers), there were "cooperative enterprises", "joint ownership enterprises", "limited liability corporations", "share holding corporations" and enterprises owned and operated by investors from Hong Kong, Macao, Taiwan province and foreign countries. Besides, sizeable numbers of small-scale private enterprises and individual businesses, officially recognised and registered, had emerged in both urban and rural areas. As already noted, moreover, irregular employment became substantial as a result of labour migration and employment contraction in state and collective enterprises.

For analytical purposes, as also for facilitating comparison with employment trends in other countries, it is helpful to classify this wide variety of forms of employment into categories commonly used in the literature. A careful scrutiny of the official definitions of enterprises and of types of employment leads us to distinguish between formal and informal sectors in the following manner. The urban formal sector is taken to be composed of state and collective enterprises, "cooperative enterprises", "joint ownership" enterprises, "limited liability" corporations, "share holding" corporations and "foreign-funded" enterprises. The TVEs constitute the rural formal sector. The urban informal sector is defined to include the registered small-scale private enterprises and individual businesses while the rural informal sector is defined to include the registered small-scale private enterprises, the registered individual businesses and the family farms operating under the "responsibility" system.

Employment in the formal sector is regular wage-paid employment. Employment in the informal sector falls into two categories: regular wage-paid employment (in registered small-scale private enterprises) and self-employment (in registered individual businesses and in family farms). We thus get three categories of employment: regular wage-employment in the formal sector (henceforth formal wage-employment or simply formal employment), regular wage-employment in the informal sector (henceforth informal wage-employment) and self-employment. Together, these three categories make up what we call regular employment. Then there is the additional category of irregular employment (of migrant workers and urban laid-off workers). Irregular employment includes both casual wage-employment (in construction or in domestic service, for example) and self-employment (in street vending or in repair services, for example), but lack of adequate information prevents us from isolating these two types. Aggregate employment in the economy, then, is the sum-total of regular and irregular employment.

3. Employment, unemployment and wages: the main trends

Growth of employment

During the period 1990-2002, aggregate employment in the Chinese economy grew at an average annual rate of 1 percent (Table 1). This growth is entirely accounted for by the growth of urban employment, which was 3.5 percent per annum; rural employment showed zero growth. The employment growth in urban areas, on the other hand, is attributable wholly to the very rapid growth of irregular employment; regular employment recorded zero growth. It thus appears that employment conditions in urban areas actually deteriorated. In contrast, employment conditions in rural areas improved; regular employment grew while irregular employment declined.

Table 1 : Employment growth (per cent per annum), 1990-2002

	Rural	**Urban**	**Total**
Formal	3.3	-3.0	-0.6*
Regular	1.1	-0.4*	0.8
Irregular	-2.3	18.5	3.2
Total	0.1*	3.5	1.0

*not significantly different from zero. The growth rates are estimated by fitting trend equations to annual data.

Source: Author's estimates based on the data in Appendix Tables A2.2 and A2.3.

These broad trends essentially reflect the dramatic changes that occurred in the urban economy between 1996 and 2002 (Table 2). During 1990-96, employment conditions generally improved in both rural and urban areas. In this period too, the growth of employment in the economy was accounted for entirely by the growth of urban employment, but the growth of urban employment largely meant growth of regular employment. During 1996-2002, however, employment growth was due entirely to the phenomenal growth of irregular employment in urban areas. Formal employment in urban areas showed a steep decline and the growth of informal employment was not sufficient to prevent a rapid decline in regular employment. The decline in formal employment, in turn, was due entirely to the decline in employment in state and collective enterprises; employment in emerging private enterprises in the formal sector was growing at a rapid rate. These trends in urban areas stand in sharp contrast with what happened in rural areas, where employment conditions improved quite substantially during the same period. This seems attributable to the healthy growth of employment in TVEs on the one hand and to out migration of workers, which reduced irregular employment, on the other.

Table 2: Employment growth (per cent per annum) in sub-periods

	1990-96			1996-2002		
	Rural	**Urban**	**Total**	**Rural**	**Urban**	**Total**
State and collective enterprises	-	-0.2*	-	-	-9.7	-
Emerging formal enterprises	-	32.3	-	-	16.3	-
TVEs	4.5	-	-	3.2	-	-
Formal wage-employment	4.5	0.8	2.0	3.2	-6.2	-2.3
Informal wage-employment	13.4	22.7	15.6	4.5	9.0	5.9
Employment under "responsibility" system	-1.0	-	-	0.0	-	-
Regular employment	1.2	2.6	1.6	1.2	-3.0	0.1*
Irregular employment	-1.6	7.3	-4.9	-3.0	23.9	9.0
Total employment	0.1*	3.0	0.9	0.0	3.7	1.1

* not significantly different from zero. The growth rates are estimated by fitting trend equations to annual data.

Source: Author's estimates based on data in Appendix Tables A2.2 and A2.3.

The brief story of employment growth in urban China in the 1990s, then, is as follows. In the first half of the 1990s, no serious reforms of state and collective enterprises were attempted while private enterprises, formal and informal, were allowed to emerge. So the state and the collective enterprises continued to carry the surplus labour they had accumulated over the years and the growth of non-state enterprises (formal and informal) and individual businesses generated new regular employment in the urban economy. Even in this period, irregular employment was growing as rural surplus workers had begun to move to urban areas in search of work; but both migration and irregular employment, given their small scale, could be seen as normal features of development rather than as problems. The patterns changed radically once reforms of state and collective enterprises were implemented and the control over rural-to-urban migration was officially relaxed in the mid-1990s. The state and the collective enterprises embarked on speedy shedding of surplus labour and migration of rural surplus workers to urban areas accelerated. Between 1996 and 2002, employment in state and collective enterprises declined by a staggering 59 million (by 42.5 per cent). During the same period, employment in newly emerging urban formal sector enterprises increased only by 16 million, so that formal employment in the urban economy declined by 43 million. Informal employment was growing rapidly but this was not enough to prevent a decline in urban regular employment by 23 million. Some of the urban job-losers joined the rural migrants to

swell the ranks of workers seeking irregular employment[13]; the number of workers in irregular employment in urban areas grew by 71 million between 1996 and 2002. Thus the unfavourable employment trends in urban China during 1996-2002 seem to have resulted largely from a process of elimination of the huge stock of surplus labour that production units in both urban and rural areas had steadily accumulated over the years.[14]

How do these developments relate to the growth process? Table 3 sets out the estimates of aggregate and sector-level growth of output and regular employment. Only regular employment is considered since reliable estimates of irregular employment by sector are not available. But a focus on regular employment also seems justified on *a priori* grounds. For, it is arguable that growth of regular employment is a true indicator of growth of labour demand while growth of irregular employment is a symptom of growing excess supply of labour.

Table 3: Output and employment, 1990-2002

	Average annual rate of growth (%)		
	1990-96	1996-2002	1990-2002
Output			
GDP	11.3	7.5	9.3
Agriculture	4.1	2.7	3.6
Manufacturing	14.6	8.7	11.2
Other industries	20.0	8.3	14.0
Services	9.4	7.9	8.5
Employment			
Total	1.6	0.1*	0.8
Agriculture	-0.9	-0.2*	-0.4
Manufacturing	2.1	-3.1	-1.1
Other industries	3.5	0.4*	1.5
Services	7.2	2.4	4.6

Note: Growth rates are estimated by fitting a trend equation to annual data. Other industries include "mining and quarrying", "electricity, gas and water" and "construction". * indicates that the value is statistically equivalent to zero.

Source: Author's estimates based on data from World Bank, World Development Indicators, 2004 (CD-ROM) and from Appendix Tables A2.4 – A2.7.

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[13] Some of the urban job-losers did find employment in the emerging informal sector, some became unemployed and some withdrew from the labour force. Fang (2004) shows that the labour force participation rate of urban residents fell from 72.9 per cent in 1996 to 66.5 per cent in 2002.

[14] In rural areas, migration was the mechanism *par excellence* for reducing surplus labour, which essentially existed in farming households.

During 1990-96, when economic growth was spectacularly rapid, the growth of regular employment (1.6 percent per annum) exceeded the growth of the labour force (1.1 percent per annum). The pattern of employment growth was also what we would normally expect to observe in a developing country context; agricultural employment declined and non-agricultural employment expanded. After 1996, economic growth slowed down quite substantially (even though it still remained high). This slowdown coincided with the process of shedding of surplus labour by production units (as discussed above); it is conceivable, even likely, that the former induced the latter. The growth of regular employment in the economy as a whole fell to zero in a period that witnessed acceleration in labour force growth (to 1.3 percent per annum). The process of labour transfer from agriculture to non-agriculture virtually came to a halt. Regular employment in non-agriculture actually declined because of a sharp decline in manufacturing employment.

A remarkable aspect of the growth process is that it has been associated with very high growth of labour productivity in industry. Particularly noteworthy is the spectacular growth of labour productivity in manufacturing in both sub-periods; during 1996-2002, when manufacturing employment declined at a rate of more than 3 percent per annum, the growth of labour productivity was nearly 12 percent per annum, only marginally lower than what it had been in the preceding sub-period. These facts suggest that the poor employment effect of growth during 1996-2002, particularly in manufacturing, is explained not only by the process of shedding of surplus labour (crucially important though this was) but also by a process of rapid technological change (involving growth of capital and skill intensity of output).[15]

In short, there were multiple factors simultaneously at work in the post 1996-period – the urgency of shedding of surplus labour by state and urban collective enterprises, the acceleration in migration of rural surplus workers, the slowdown in economic growth and the process of rapid technological change in industry – that combined to produce worsening employment conditions in urban China.

Changes in the structure of employment

It is already clear that China's employment structure changed substantively and in somewhat non-typical ways during the period under review. Here we take a closer look at these changes.

The data in Table 4 show the changes in the industrial distribution of employment. Agriculture still remains by far the most important employer, though its importance has been declining. On the other hand, the importance of services, the second most important employer, has been rising. These are features that are quite typical in the context of developing economies. There are two other changes, however, which are quite non-typical. The first is that, despite the industrial revolution, the share of manufacturing in total employment grew smaller between 1996 and 2002. The second is that, throughout the 1990s, there was industrialisation of rural areas and de-industrialisation of urban areas.

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[15] The only sector where growth was employment-intensive was services, but it was not the sector that recorded the fastest growth.

Table 4: Structure of employment (percentage distribution) by industry

	1990		1996		2002	
Total						
Agriculture	52.7	(60.1)	47.8	(52.5)	44.2	(51.2)
Manufacturing	13.3	(15.2)	14.2	(15.6)	11.2	(13.0)
Other industries	5.7	(6.5)	6.5	(7.1)	6.4	(7.4)
Services	15.9	(18.2)	22.5	(24.8)	24.6	(23.4)
Unspecified	12.4	-	9.0	-	13.6	-
Rural						
Agriculture	68.8	(79.4)	65.9	(71.3)	65.4	(66.0)
Manufacturing	6.7	(7.7)	8.2	(8.9)	9.1	(9.2)
Other industries	3.6	(4.2)	4.6	(5.0)	6.0	(6.0)
Services	7.5	(8.7)	13.7	(14.8)	18.6	(18.8)
Unspecified	13.4	-	7.6	-	0.9	-
Urban						
Agriculture	4.8	(5.3)	3.2	(3.6)	1.8	(2.9)
Manufacturing	33.1	(36.6)	29.1	(33.1)	15.3	(25.1)
Other industries	12.1	(13.4)	11.4	(13.0)	7.2	(11.8)
Services	40.5	(44.7)	44.1	(50.3)	36.7	(60.2)
Unspecified	9.5	-	12.2	-	39.0	-

Note: Figures in parentheses show the distribution of regular employment.

Source: Author's estimates based on the data in Appendix Tables A2.1, A2.4 – A2.7.

As in most developing countries, self-employment is the predominant form of employment in China (Table 5). But, unlike in most developing countries, formal wage-employment is the second most important form of employment. In terms of time-trends, however, the relative importance of self-employment has remained stable, formal wage-employment has been declining in importance and informal wage-employment has been rising in importance. The most remarkable fact, once again, is that the change in the structure of employment was healthier in the rural economy; the relative importance of self-employment declined while that of formal and informal wage-employment increased, and irregular employment virtually disappeared. In urban areas, in contrast, self-employment, informal wage-employment and irregular employment have all grown in importance while the relative importance of formal wage-employment declined. These changes, of course, were far more pronounced after 1996 than before.

Table 5: Structure of employment (percentage distribution) by status

	1990		1996		2002	
Total						
Self-employment	56.1	(64.0)	56.3	(61.9)	54.5	(63.1)
Regular wage employment	31.5	(36.0)	34.7	(38.1)	31.9	(36.9)
(Formal sector)	31.2	(35.6)	33.0	(36.2)	27.3	(31.6)
(Informal sector)	0.3	(0.4)	1.7	(1.9)	4.6	(5.3)
Irregular employment	12.4	-	9.0	-	13.6	-
Rural						
Self-employment	73.7	(85.1)	75.3	(81.5)	76.9	(77.6)
Regular wage employment	12.9	(14.9)	17.1	(18.5)	22.2	(22.4)
(Formal sector)	12.6	(14.5)	16.0	(17.3)	19.3	(19.5)
(Informal sector)	0.3	(0.4)	1.1	(1.2)	2.9	(2.9)
Irregular employment	13.4	-	7.6	-	0.9	-
Urban						
Self-employment	3.7	(4.1)	8.9	(10.1)	9.6	(15.7)
Regular wage employment	86.8	(95.9)	78.9	(89.9)	51.4	(84.3)
(Formal sector)	86.5	(95.6)	75.8	(86.4)	43.2	(70.9)
(Informal sector)	0.3	(0.3)	3.1	(3.5)	8.2	(13.4)
Irregular employment	9.5	-	12.2	-	39.0	-

Note: Figures in parentheses show the distribution of regular employment.

Source: Author's estimates based on the data in Appendix Tables A2.1, A2.4 – A2.7.

These developments have brought about an important change in the rural-urban distribution of non-agricultural employment; rural areas now account for a majority of regular non-agricultural jobs (Table 6). More significantly, in all non-agricultural sectors, the share of rural areas in formal employment has been rising while that in informal employment has been falling. In manufacturing and in "other industries", rural areas already account for the majority of the formal jobs.

Table 6: Share (%) of rural areas in regular non-agricultural employment

	1990	1996	2002
Manufacturing	37.5	41.4	54.7
Formal	35.0	36.4	52.3
Informal	80.9	71.2	61.7
Other industries	46.6	50.3	63.1
Formal	46.3	49.7	64.1
Informal	100.0	71.4	48.3
Services	35.9	43.7	50.2
Formal	21.2	25.4	36.6
Informal	78.2	70.0	63.5
Non-agriculture	38.3	44.0	53.4
Formal	31.7	34.5	47.8
Informal	78.7	70.3	62.8

Source: Author's estimates based on the data in Appendix Tables A2.5 – A2.7.

Unemployment

A major consequence of the reforms of the 1990s has been the emergence of open unemployment in China's urban areas.[16] The official estimates of registered unemployment, based as they are on a narrow definition, seriously understate the magnitude of the problem.[17] However, the "adjusted" data on labour force and employment, recently published by the NSB, allow estimation of unemployment rates according to internationally accepted definition. Besides, independent surveys, analyses of data from the 2000 population census and a fair amount of research effort have now made fairly reliable estimates of urban unemployment available. These estimates are presented in Table 7.

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[16] In rural areas, the household responsibility system ensures that each household has access to some land, so that there is underemployment rather than open unemployment.   However, rapid expansion of towns and cities has led to conversion of rural agricultural land into urban real estates, thereby generating landlessness of sizeable sections of rural population. These persons, who cannot really be called rural migrants, have no option but to join the urban labour force and some of them could conceivably have become unemployed.

[17] "Registered urban unemployed persons refer to the persons with non-agricultural household registration at certain working ages (16-50 years for males and 16-45 years for females), who are capable of work, unemployed and willing to work, and have been registered at the local employment service agencies to apply for a job." NSB, China Statistical Yearbook, 2004 (CD-ROM), Explanatory Notes.

Table 7: Urban unemployment rate (%)

	All workers			Workers registered as urban residents			Migrant workers
	"Adjusted" LFS data[1]	GPZ estimates[2]	Population census of 2000[3]	GPZ estimates[2]	Population census of 2000[3]	HS estimates[4]	Population census of 2000[3]
1990	3.3						
1991	3.4						
1992	3.5						
1993	3.5						
1994	5.7						
1995	6.0	4.0		6.1			
1996	5.7	4.5		6.8		9.6	
1997	6.1	5.0		7.7			
1998	7.8	5.6		8.5			
1999	7.3	5.9		9.0		11.6	
2000	8.9	6.5	8.3	10.0	12.7		4.7
2001	6.9	7.0		10.8			
2002	7.3	7.3				12.4	

[1] Author's estimates based on the data in Appendix Table A2.1.
[2] Giles, Park and Zhang (2005) and Fang (2004).
[3] Cited in Giles, Park and Zhang (2005).
[4] Household survey results cited in Knight and Xue (2004).

The estimates based on "adjusted" LFS data are derived by using the standard methodology. The number of unemployed persons is estimated by subtracting the number employed from the number in labour force. On the assumption that all unemployed persons are in urban areas, the number in urban labour force is then estimated by adding the number unemployed to the number employed in urban areas. The unemployment rate is the number unemployed expressed as a percentage of the urban labour force. The "GPZ estimates" are derived by using data from China Urban Labour Survey, conducted by the Institute of Population and Labour Economics (Chinese Academy of Social Sciences) in 2001, and from its follow-up survey conducted in 2002 together with the detailed data available from the 2000 population census. The "HS estimates" are based on data from household surveys, which cover only six provinces.

The estimates suggest two main conclusions. First, urban unemployment really emerged as problem only after 1993; the unemployment that existed during 1990-93 could be regarded as frictional. Second, urban unemployment has undoubtedly grown into a serious problem. For workers who are long-term urban residents, the unemployment rate was 11-13 percent by 2002. The unemployment rate among rural migrants was much lower. This is not particularly surprising; the fact that most rural migrants are in irregular employment means that they are likely to face underemployment rather than unemployment. Moreover, when faced with unemployment, rural migrants can be expected to move, either back to rural areas or to other urban areas.

14

Wages

Only limited data on wages are available. There are no published data on wages in informal sector and the available data on wages in TVEs are sketchy. For the urban formal sector, wage data are available for the whole period for state and collective enterprises; for the period 1993-2002 for "joint ownership" enterprises, "shareholding corporations" and "foreign-funded" enterprises; and for the period 1998-2002 for "cooperative" enterprises and "limited liability corporations".

The estimates of real wage growth, presented in Table 8, bring out two striking facts. First, real wage growth in urban formal sector enterprises was much faster during 1996-2002, a period of worsening employment conditions, than during 1990-96, a period of improving employment conditions. Second, during 1996-2002, real wage growth was fastest in state enterprises, which were reducing employment at a rapid rate.

Table 8: Growth (per cent per annum) of real wages in urban formal sector

	1990-96	1996-2002	1990-2002
Average	5.7	11.8	7.9
State enterprises	4.8	12.0	7.5
Collective enterprises	3.2	9.7	5.9
Joint ownership enterprises	-	10.6	-
Share holding corporations	-	10.5	-
Enterprises funded by residents of Hong Kong, Macao and Taiwan province	-	8.0	-
Foreign funded enterprises	-	10.7	-

Note: Money wages are deflated by the consumer price index for urban areas to estimate real wages. The growth rates are estimated by fitting trend equations to annual data.

Source: Author's estimates based on the data in Appendix Tables A2.9 and A2.10.

What explains these seemingly paradoxical developments? It is to be noted that consumer prices in urban areas, which had grown at a rate of 13.7 percent per annum in the first period, remained virtually unchanged in the second period. The question, therefore, is: why did money wages grow at such high rates in the second period despite price stability and a growing slack in the labour market? It is not possible to seek an empirical answer to the question, as adequate evidence is not available. But a plausible explanation could run as follows. The observed combination of high growth of labour productivity with declining employment during 1996-2002 strongly suggests that a process of rapid technological change was under way in the urban industrial sector. This means that the average skill level of the workforce in modern sector enterprises was rising rapidly. It is possible to imagine, then, that

competition among enterprises for skilled labour led to rapid growth of wages of skilled labour in all enterprises. In the case of state enterprises, the process of increasing the average skill level of the workforce would have involved simultaneous laying-off of unskilled workers and hiring of skilled workers, and this could explain why wage growth in state enterprises was higher than in other newly emerging enterprises (which were in a position to ensure a desired skill composition of the workforce right from the start). Thus skill-biased technological change is the most likely explanation for the rapid growth of wages in the urban formal sector during 1996-2002.[18]

The data in Table 9 show the relative wages across different types of enterprises. There are three noteworthy facts. First, "foreign-funded" enterprises pay substantially higher wages than state enterprises[19], though the wage gap has narrowed over time. Second, within the formal sector, urban collective enterprises and TVEs pay the lowest wages, indicating that these enterprises employ relatively less skilled labour than other formal sector enterprises. Third, during 1996-2002, wage growth in urban collective enterprises and in TVEs appears to have been slower than that in state enterprises.[20] This indicates a widening of the wage gap between skilled and unskilled labour, which, of course, should be expected in a period of skill-biased technological change.

Table 9: Relative wages

	1990	1993	1996	1998	2002
SOE	100.0	100.0	100.0	100.0	100.0
COE	73.6	73.4	68.5	69.5	59.6
Coop		-	-	78.9	73.7
JOE		105.9	109.2	109.9	96.8
LLC		-	-	101.1	93.2
SHC		146.4	121.4	115.2	107.6
HKMT		145.7	132.7	130.8	106.9
FFE		150.5	149.4	153.5	139.0
TVE	53.3	-	-	65.0	-

Note: SOE – state-owned enterprises, COE – collective-owned enterprises, Coop – cooperatives, JOE – joint ownership enterprises, LLC – limited liability corporations, SHC – shareholding corporations, HKMT – owned by residents of Hong Kong, Macao and Taiwan, FFE – foreign-funded enterprises, TVE – township and village enterprises.

Source: Author's estimates based on the data in Table A2.9.

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[18] This imp lies a widening wage-gap between skilled and unskilled labour, between formal and informal sectors and between urban and rural areas. For a discussion of the behaviour of skilled-unskilled wage differential in manufacturing during 1980-95, see Woo (2002).

[19] This is in line with what has been observed in other countries. See Lipsey (2004) for some evidence.

[20] The average wage in TVEs as percentage of the average wage in state enterprises was 53.3 in 1990, 60.8 in 1995, 66.3 in 1997, 65.0 in 1998 and 60.8 in 1999. Thus the indications are that wage growth was faster in TVEs than in state enterprises till the mid-1990s but the pattern was reversed in the subsequent period.

4. Concluding observations

Urban employment conditions in China substantially worsened in the post-1996 period. The average quality of employment declined (there were large declines in formal employment and large increases in irregular employment), unemployment emerged as a serious problem, and labour force participation fell as discouraged job seekers stopped searching for jobs. These trends stand in sharp contrast with those observed in the first half of the 1990s as also with the trends observed in the rural economy. Urban employment conditions had shown significant improvement during 1990-96. Rural employment conditions improved throughout the period 1990-2002 as employment in TVEs grew and irregular employment declined.[21]

The basic explanation for the trends lies in the growing difficulty of economic units in both urban and rural areas in carrying the huge stocks of surplus labour that they had accumulated over the years as a result of past policies of administrative control over job allocation and severe restrictions on migration. When, in the mid-1990s, state and collective enterprises were allowed to shed surplus labour and rural surplus workers were allowed to move to urban areas in search of work, formal employment rapidly declined and irregular employment rapidly increased.[22] In rural areas, surplus labour existed in household farming rather than in TVEs (which continued to increase employment), so that out migration of surplus workers had the effect of reducing irregular employment.

The period 1996-2002 was also characterised by a slowdown in economic growth and a rapid process of skill-biased technological change in industrial enterprises in the urban formal sector. However, the rate of economic growth, despite the slowdown, remained high and the skill-biased technological change is more relevant in explaining the pace and pattern of wage growth (the rapid growth of average real wage and the rising skill premium) than in explaining the decline in employment in the formal sector.[23] Thus these factors could only have had minor influences on employment trends; nevertheless, they clearly contributed to the worsening trend in urban employment conditions.

It is perhaps worth pointing out that the observed changes in employment conditions do not have straightforward implications for poverty or income inequality. Our conclusions are based on the judgement that formal employment is superior to informal employment, which in turn is superior to irregular employment. We also judge unemployment and non-participation in the labour force as undesirable. These judgements have wide acceptability, but they do not tell us much about incomes. There are no *a priori* grounds for supposing, for example, that persons in irregular employment necessarily earn below-poverty-line incomes or that the rural migrants, who engage in irregular employment in urban areas, earn less than what they could

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[21] The labour force participation rate in rural China was also rising.

[22] Unemployment increased mainly because many of the workers laid-off by the state and the collective enterprises lacked the skills required to find new jobs in the emerging informal sector.

[23] Skill-biased technological change can be expected to lower the employment intensity of output growth, but there is no reason why it should reduce employment while output is growing.

have earned in rural areas. Similarly, while our evidence on wage movements does indicate growth of inequality, wage inequality is not the most important determinant of income inequality in China.[24]

The challenge confronting China's policy makers is clear: the rising trend in unemployment and in irregular employment must be reversed without restricting rural-to-urban migration.[25] This requires accelerated growth of regular employment. It is likely that state and collective enterprises have by now completed the process of shedding surplus labour so that future economic growth should increase formal employment in both rural and urban areas. This will be helpful but, in all likelihood, will not be enough, particularly since the process of skill-biased technological change can be expected to continue and China's accession to WTO is expected to bring some disruptions in the urban formal sector.[26] Attention, therefore, will need to be focused on facilitating growth of informal enterprises. It is in this context that the possibility of reorienting the growth strategy towards greater reliance on expansion of the domestic market will need to be seriously considered. Policies designed to reduce China's high domestic saving rate have to be high on the agenda.

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[24] The available direct evidence shows that the incidence of poverty (Headcount Index) in rural China declined from 29.2% in 1990 to 13.8% in 1996 but then stopped declining. In urban China, it declined from 2.5% in 1990 to 0.6% in 1996 but then, once again, stopped declining. In both rural and urban China, income inequality was rising throughout the period 1990-2002. See Chen and Ravallion (2004). It does seem, therefore, that the worsening employment conditions in urban China halted the declining trend in poverty in both urban and rural areas but did not affect the course of income inequality. However, this is only an impression and not a result of rigorous analysis. It is also important to note that the household surveys, which are used to measure poverty and inequality, leave out the migrant population and hence give biased results.

[25] The rural sector still holds a large number of surplus workers. Restriction of rural-to-urban migration will only exacerbate rural-urban and interregional inequalities.

[26] On the possible consequences of China's accession to WTO, see Bhalla and Qiu (2002), Ianchovichina and Martin (2003), and Zeng (2005).

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Appendix 1: The problem of consistency between the "adjusted" and the "unadjusted" estimates

The population census of 2000 showed China's labour force and employment to be substantially larger than the estimates produced by the LFS, which used 1990 census as the benchmark. This prompted the National Bureau of Statistics (NBS) to produce new "adjusted" estimates of labour force and employment (total and its distribution between urban and rural areas as well as over three broad sectors – agriculture, industry and services) for the period beginning with 1990. These "adjusted" estimates, of course, are much higher than the "unadjusted" estimates directly available from the LFS. Unfortunately, the method of adjustment is not known and we must speculate on possible sources of discrepancy.

We know of two major changes that occurred in the period between 1990 and 2000. The first was the change in the employment system that spurred growth of informal and irregular employment in both rural and urban areas. The second was a progressive relaxation of control on rural-to-urban migration in search of work opportunities. Given these changes, a plausible explanation for the discrepancy between the "adjusted" and the "unadjusted" estimates that suggests itself is that the LFS failed to cover the migrants from rural areas, who find irregular wage employment in urban enterprises (e.g. casual work in construction, in cleaning and maintenance of premises, in retail trade, in catering services, etc.) or engage in irregular self-employment (such as street vending, domestic service, etc.) in towns and cities. This would be the case if the urban sample in the LFS were drawn from the population officially registered as urban residents and the rural sample were drawn from the population both officially registered and actually resident in rural areas.

This explanation does seem to receive some support from the data presented in the Table below. These data, which show the positive deviations of the "adjusted" estimates of employment from the "unadjusted" estimates, highlight one striking fact: the deviation for rural employment steadily declined and that for urban employment steadily increased over time. This is what we would expect to observe if we suppose the LFS to have left out of account the rural migrants working in towns and cities. For it is plausible to suppose that, initially, rural migrants found work mainly in TVEs or private enterprises located in smaller towns, which would have counted as rural areas, and later began to move to large towns and cities, i.e., to proper urban areas. The table suggests, moreover, that migration to large towns and cities (i.e., urban areas) really began to grow after 1995, which seems quite plausible since it was around 1995 that restrictions on migration began to be officially relaxed. An analysis of data from the 2000 population census has shown that there were 85 million persons who lived and worked in urban areas but had remained registered as rural residents. More recent estimates suggest that the number of such persons reached 100 million by 2004.[27]

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[27] See Fang (2004).

Table A1.1: Excess of "adjusted" estimates of employment over "unadjusted" estimates (in millions)

	Rural	Urban	Agriculture	Industry	Services	Total
1990	64.9	15.3	47.9	15.5	16.8	80.2
1991	57.5	13.7	41.4	13.8	16.0	71.2
1992	53.0	14.1	39.0	12.6	15.9	67.1
1993	43.2	22.6	37.1	13.1	15.6	65.8
1994	41.4	18.3	32.4	12.0	15.4	59.8
1995	39.9	17.0	25.1	12.1	19.7	56.9
1996	37.4	23.9	19.1	17.3	24.9	61.3
1997	30.9	30.5	17.4	22.1	21.9	61.4
1998	25.9	56.8	19.5	38.3	24.9	82.7
1999	20.8	68.2	28.6	38.3	27.9	89.0
2000	9.7	81.3	26.8	36.4	27.8	91.0
2001	8.3	91.4	37.1	35.7	28.6	99.7
2002	4.2	95.3	43.8	26.3	29.4	99.5

Source: Author's estimates from the data available in NBS, *China Statistical Yearbook,* 2004 (CD-ROM), Tables 5-2, 5-4 and 5-6.

However, the explanation runs into two difficulties. The first difficulty is that if we accept the explanation, we would also have to accept that the total number of rural migrants was already large in 1990, that it declined till 1995 and that it then rose. However, it is also noticeable that the number of persons in irregular employment in urban areas apparently increased very sharply in the period after 1997, when there was a sharp decline in urban formal employment. This suggests that, at least from 1998 onward, not all those in irregular employment were rural migrants. There is some independent evidence to show that some of the workers, laid off by the state-owned and the collective-owned enterprises, also found irregular employment.[28] It seems, therefore, that the annual flow of rural migrants may well have been declining, but irregular employment nevertheless kept growing because of large-scale lay-offs by state and collective enterprises. However, it remains unclear why the LFS should have failed to cover the laid-off workers, who obviously are registered urban residents.

The second difficulty is apparent from the data on sector-level differences between "adjusted" and "unadjusted" estimates of employment. These data seem to suggest that irregular employment in agriculture has been and remains very substantial (it had declined till 1997 and increased thereafter). This seems highly implausible. It is possible to imagine a process in which workers in prosperous rural areas move out of agriculture into non-agricultural jobs and migrant workers fill the space vacated thereby. But it is hard to imagine a situation where both rural migrants and urban laid-off workers move to agriculture when formal employment declines in urban areas. It is also difficult to see how, in the period since 1997, workers could have moved to agricultural jobs without moving to rural areas.

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[28] See Fang (2004).

These puzzles, unfortunately, must remain unresolved in this paper. We regard the "adjusted" data on employment in sectors – agriculture, industry and services – as unreliable and do not use them. Our working hypothesis in this paper is that the "excess" workers are essentially rural migrants and urban laid-off workers who have found irregular employment in towns and cities. The confirmation or rejection of the hypothesis must await further clarifications from the NBS.

Appendix 2: Statistical tables

Table A2.1: Labour force and employment (in millions)

	Labour force adjusted	Employment (adjusted)			Employment (unadjusted)		
		Total	**Rural**	**Urban**	**Total**	**Rural**	**Urban**
1990	653.3	647.5	484.8	162.7	567.3	419.9	147.4
1991	660.9	654.9	488.5	166.4	583.7	431.0	152.7
1992	667.8	661.5	491.1	170.4	594.4	438.1	156.3
1993	674.7	668.1	486.0	182.1	602.3	442.8	159.5
1994	681.4	670.4	488.2	182.2	610.7	446.8	163.9
1995	688.6	676.8	490.4	186.4	619.9	450.5	169.4
1996	697.7	685.8	490.0	195.8	624.5	452.6	171.9
1997	708.0	694.8	490.7	204.1	633.4	459.8	173.6
1998	720.9	702.9	490.3	212.6	620.2	464.4	155.8
1998	727.9	710.5	490.0	220.5	621.5	469.2	152.3
2000	739.9	717.6	489.6	228.0	626.6	479.9	146.7
2001	744.3	726.9	491.0	235.9	627.3	482.7	144.6
2002	753.6	734.3	486.9	244.4	634.8	485.7	149.1

Note: The estimated employment of persons from Hong Kong, Macao and Taiwan province of China as also of foreigners (these estimates are presented in Table A2.8) is subtracted from total and urban employment. Also, for the years 1990-93, some adjustments of the "unadjusted" rural and urban employment had to be made in order to make them consistent with the data on employment by type (see Tables A2.4 – A2.7 below). These adjustments called for corresponding adjustments in the "adjusted" estimates for the years 1990-93 since, for any given year, the "adjusted" estimate must equal the sum of the "unadjusted" estimate and the corresponding excess (Table A1.1).

Source: NBS, *China Statistical Yearbook*, 2004 (CD-ROM), Table 5-2; Table A1.1 above; Tables A2.2 and A2.3 below.

Table A2.2: Rural employment by type (in millions)

	TVEs	EP	ES	RS	IRR	Total
1990	61.3	1.1	26.5	331.0	64.9	484.8
1991	61.8	1.2	28.5	339.5	57.5	488.5
1992	66.6	1.3	32.4	337.8	53.0	491.1
1993	70.7	1.9	40.4	329.8	43.2	486.0
1994	74.0	3.2	45.7	323.9	41.4	488.2
1995	76.3	4.7	50.2	319.3	39.9	490.4
1996	78.2	5.5	51.2	317.7	37.4	490.0
1997	79.5	6.0	54.8	319.5	30.9	490.7
1998	78.0	7.4	58.5	320.5	25.9	490.3
1999	79.8	9.7	56.7	323.0	20.8	490.0
2000	85.2	11.4	60.2	323.1	9.7	489.6
2001	89.9	11.9	60.3	320.6	8.3	491.0
2002	94.8	14.1	60.5	316.3	4.2	489.9

Note: TVE – employment in township and village enterprises, EP – employment in registered small private enterprises, ES – registered self-employment, RS – employment under rural responsibility system and IRR – irregular employment. The figures on employment in TVEs are the author's estimates based on the estimates of sector-specific employment in TVEs presented in Tables A2.4 – A2.7 below. The method of estimation of RS is explained in the note to Table A2.4.

Source: Table A1.1 above; Tables A2.4 – A2.7 below.

Table A2.3: Urban employment by type (in millions)

	TF	EF	EP	ES	IRR	Total
1990	139.1	1.6	0.6	6.1	15.3	162.7
1991	142.9	2.2	0.7	6.9	13.7	166.4
1992	145.1	2.8	1.0	7.4	14.1	170.4
1993	143.1	5.2	1.9	9.3	22.6	182.1
1994	141.0	7.4	3.3	12.3	18.3	182.2
1995	140.4	8.7	4.9	15.6	17.0	186.4
1996	139.0	9.4	6.1	17.4	23.9	195.8
1997	135.9	10.8	7.5	19.4	30.5	204.1
1998	107.2	16.3	9.7	22.6	56.8	212.6
1999	99.9	17.8	10.5	24.1	68.2	220.5
2000	93.3	19.3	12.7	21.4	81.3	228.0
2001	86.5	21.4	15.3	21.3	91.4	235.9
2002	79.9	25.7	20.0	23.5	95.3	244.4

Note: TF – employment in traditional formal enterprises (state-owned and collective-owned), EF – employment in emerging formal enterprises (cooperative enterprises, joint ownership enterprises, limited liability corporations, shareholding corporations and foreign-funded enterprises including those funded by residents of Hong Kong, Macao and Taiwan province of China), EP – employment in registered small-scale private enterprises, ES – employment in registered individual businesses, and IRR – irregular employment.

Source: Table A1.1 above; Tables A2.4 – A2.7 below.

Table A2.4: Regular employment in agriculture by type (in millions)

	Urban				Rural				Total
	TF	EF	EI	Total	TVEs	EI	RS	Total	
1990	7.8	0.0	0.0	7.8	2.4	0.0	331.0	333.4	341.2
1991	7.7	0.0	0.0	7.7	2.4	0.0	339.5	341.9	349.6
1992	7.6	0.0	0.0	7.6	2.6	0.0	337.8	340.4	348.0
1993	7.1	0.0	0.0	7.1	2.8	0.0	329.8	332.6	339.7
1994	6.8	0.0	0.0	6.8	2.6	0.6	323.9	326.5	333.9
1995	6.6	0.0	0.1	6.7	3.1	1.1	319.3	323.5	330.2
1996	6.2	0.0	0.2	6.4	3.4	1.6	317.7	322.7	329.1
1997	6.1	0.0	0.3	6.4	2.8	2.3	319.5	324.6	331.0
1998	5.5	0.0	0.4	5.9	2.7	3.2	320.5	326.4	332.3
1999	5.2	0.0	0.4	5.6	2.5	3.8	323.0	329.3	334.9
2000	4.9	0.0	0.4	5.3	2.2	3.0	323.1	328.3	333.6
2001	4.6	0.0	0.4	5.0	2.0	2.1	320.6	324.7	329.7
2002	4.3	0.0	0.4	4.7	2.1	1.8	316.3	320.2	324.9

Note: EI is employment in emerging informal enterprises and equals (EP + ES). The acronyms are explained in notes to Tables A2.2 and A2.3. Data on agricultural employment in TF, EF and EI are directly available. We also assume the directly available data on agricultural employment in TVEs to be valid. Since data on agricultural employment in rural areas are also directly available, we estimate employment under "responsibility system" as residuals (agricultural employment in rural areas – agricultural employment in TVEs – agricultural employment in rural EI).

Source: NBS, *China Statistical Yearbook*, 2004 (CD-ROM), Tables 5-6, 5-7, 5-10, 5-12, 5-16 and 5-17; and NBS and MOLSS, *China Labour Statistical Yearbook*, 2003 (CD-ROM), Tables 1-18 and 7-3.

Table A2.5: Regular employment in manufacturing by type (in millions)

	Urban				Rural			Total
	TF	EF	EI	Total	TVEs	EI	Total	
1990	51.7	1.3	0.9	53.9	28.5	3.8	32.3	86.2
1991	52.6	1.8	1.3	55.7	28.5	4.2	32.7	88.4
1992	52.8	2.3	1.3	56.4	30.2	4.5	34.7	91.1
1993	50.3	4.3	1.8	56.4	31.5	5.1	36.6	93.0
1994	48.4	5.9	2.7	57.0	31.2	7.3	38.5	95.5
1995	47.5	6.9	3.4	57.8	30.6	9.1	39.7	97.5
1996	45.7	7.2	4.0	56.9	30.3	9.9	40.2	97.1
1997	42.5	8.3	4.5	55.3	29.6	10.7	40.3	95.6
1998	26.2	11.5	5.6	43.3	27.2	12.1	39.3	82.6
1999	22.7	12.3	6.0	41.0	26.2	13.3	39.5	80.5
2000	19.3	13.1	6.3	38.7	28.1	13.0	41.1	79.8
2001	16.2	13.9	7.2	37.3	30.4	12.6	43.0	80.3
2002	13.3	15.8	8.2	37.3	31.9	13.2	45.1	82.4

Note: The acronyms are explained in notes to Tables A2.2 – A2.4 Persons from Hong Kong, Macao and Taiwan province as also from foreign countries, who are employed in China's manufacturing industries, are excluded from the estimates of urban manufacturing employment. Data on manufacturing employment in TVEs are directly available but are not consistent with the data on rural manufacturing employment and rural EI employment that are also directly available. So we have estimated manufacturing employment in TVEs as (rural manufacturing employment – rural EI in manufacturing).

Source: NBS, *China Statistical Yearbook*, 2004 (CD-ROM), Tables 5-6, 5-7, 5-10, 5-12, 5-16 and 5-17; NBS and MOLSS, *China Labour Statistical Yearbook*, 2003 (CD-ROM), Table 1-18.

Table A2.6: Regular employment in other industries by type (in millions)

	Urban				Rural			Total
	TF	EF	EI	Total	TVEs	EI	Total	
1990	19.7	0.0	0.0	19.7	17.0	0.2	17.2	36.9
1991	20.5	0.0	0.1	20.6	17.1	0.2	17.3	37.9
1992	21.0	0.0	0.1	21.1	18.5	0.2	18.7	39.8
1993	23.0	0.0	0.2	23.2	19.9	0.5	20.4	43.6
1994	22.0	0.2	0.2	22.4	20.3	0.3	20.6	43.0
1995	22.0	0.2	0.4	22.6	21.1	0.9	22.0	44.6
1996	21.5	0.4	0.4	22.3	21.6	1.0	22.6	44.9
1997	20.9	0.5	0.5	21.9	22.7	1.0	23.7	45.6
1998	16.6	1.8	0.7	19.1	22.6	1.3	23.9	43.0
1999	14.9	2.2	0.8	17.9	24.0	1.3	25.3	43.2
2000	13.6	2.5	0.9	17.0	25.7	1.2	26.9	43.9
2001	12.5	3.1	1.0	16.6	26.7	1.3	28.0	44.6
2002	11.2	4.6	1.5	17.3	28.2	1.4	29.6	46.9

Note: The acronyms are explained in notes to Tables A2.2 - A2.4.   Other industries include "mining and quarrying", "electricity, gas and water" and "construction". In rural areas, however, other industries essentially mean "construction". For the years 1990-93, urban employment in other industries derived from separately available data on employment in TF, EF and EI sectors fell short of urban employment in other industries available elsewhere. Rural employment in other industries, therefore, had to be adjusted upwards. Employment in TVEs is derived as "rural employment in other industries" – "rural EI" in other industries.

Source: NBS, *China Statistical Yearbook*, 2004 (CD-ROM), Tables 5-6, 5-7, 5-10, 5-12, 5-16 and 5-17; NBS and MOLSS, *China Labour Statistical Yearbook*, 2003 (CD-ROM), Table 1-18.

Table A2.7: Regular employment in services by type (in millions)

	Urban				Rural			Total
	TF	EF	EI	Total	TVEs	EI	Total	
1990	59.9	0.3	5.8	66.0	16.2	20.8	37.0	103.0
1991	62.1	0.4	6.2	68.7	16.9	22.2	39.1	107.8
1992	63.7	0.5	7.0	71.2	18.3	26.0	44.3	115.5
1993	62.7	0.9	9.2	72.8	16.5	36.7	53.2	126.0
1994	63.8	1.3	12.6	77.7	19.9	40.7	60.6	138.3
1995	64.3	1.6	16.5	72.4	21.5	43.8	65.3	147.7
1996	65.6	1.8	18.9	86.3	22.9	44.2	67.1	153.4
1997	66.4	2.0	21.6	90.0	24.4	46.8	71.2	161.2
1998	58.9	3.0	25.6	87.5	25.5	49.3	74.8	162.3
1999	57.1	3.3	27.4	87.8	27.1	48.0	75.1	162.9
2000	55.5	3.7	26.5	85.7	29.2	54.4	83.6	169.3
2001	53.2	4.4	28.0	85.6	30.8	56.2	87.0	172.6
2002	51.1	5.3	33.4	89.8	32.6	58.2	90.8	180.6

Note: The acronyms are explained in notes to Tables A2.2 – A2.4. For the years 1990-93, estimates of urban employment in services derived from the data on employment in TF, EF and EI sectors fell short of the estimates of urban employment in services directly available elsewhere. We judged it appropriate to adjust upwards the estimates of rural employment in services for these years so as to keep the estimates of total employment in services unchanged. The estimates of employment in TVEs are derived as: rural employment in services – rural EI (which includes rural employment in "others") in services. For the years 1990-93, the additional employment in services resulting from the upward adjustment was equally split between TVE and EI.

Source: NBS, *China Statistical Yearbook*, 2004 (CD-ROM), Tables 5-6, 5-7, 5-10, 5-12, 5-16 and 5-17; NBS and MOLSS, *China Labour Statistical Yearbook*, 2003 (CD-ROM), Table 1-18.

Table A2.8: Persons from Hong Kong, Macao, Taiwan province and foreign countries working in mainland China (in millions)

	Agriculture	Manufacturing	Other industries	Services	Total
1990	0.0	0.0	0.0	0.0	0.0
1991	0.0	0.0	0.0	0.0	0.0
1992	0.0	0.0	0.0	0.0	0.0
1993	0.0	0.0	0.0	0.0	0.0
1994	0.0	0.6	2.0	1.5	4.1
1995	0.0	0.5	1.9	1.4	3.8
1996	0.0	0.5	2.2	1.0	3.7
1997	0.0	0.5	1.7	1.2	3.4
1998	0.0	0.6	1.6	1.4	3.6
1999	0.0	0.6	1.6	1.2	3.4
2000	0.0	0.6	1.5	1.1	3.2
2001	0.0	0.5	1.7	1.1	3.3
2002	0.0	0.7	1.5	0.9	3.1

Note: These are estimated as residuals: the directly available estimate of urban regular employment minus "staff and workers" in TF and EF enterprises plus urban EI. It is assumed that persons from outside mainland China work only in urban areas.

Source: NBS, *China Statistical Yearbook,* 2004 (CD-ROM), Tables 5-6, 5-7, 5-10, 5-12 and 5-17; NBS and MOLSS, *China Labour Statistical Yearbook,* 2003 (CD-ROM), Table 1-18.

Table A2.9: Average money wage (Yuan per annum) of staff and workers

	SO	CO	Coop	JO	LLC	SHC	HKMT	FFE	TVE
1990	2284	1681	-	-	-	-	-	-	1217
1991	2477	1866	-	-	-	-	-	-	
1992	2878	2109	-	-	-	-	-	-	
1993	3532	2592	-	3741	-	5171	5147	5315	
1994	4797	3245	-	4982	-	6383	6376	6533	
1995	5625	3931	-	6056	-	7277	7484	8058	3419
1996	6280	4302	-	6856	-	7623	8334	9383	
1997	6747	4512	-	7310	-	7693	9329	10361	4476
1998	7668	5331	6054	8431	7750	8833	10027	11767	4988
1999	8543	5774	6709	9501	8632	9720	10991	12951	5193
2000	9552	6262	7473	10663	9766	11131	11914	14372	
2001	11178	6867	8398	11887	10993	12385	12544	16101	
2002	12869	7667	9484	12451	11997	13850	13756	17892	

Note: SO – state owned, CO – collective owned, Coop – cooperatives, JO – joint ownership, LLC – limited liability corporations, SHC – shareholding corporations, HKMT – owned by residents of Hong Kong, Macao and Taiwan, FFE – foreign-funded enterprises, and TVE – township and village enterprises.

Source: *China Statistical Yearbook,* 2003 (CD-ROM), Tables 5-21 and 5-33; OECD, *China in the World Economy: the Domestic Policy Challenges* (Paris, 2002), Table 16.5

Table A2.10: Average money wage of staff and workers in urban formal enterprises and consumer price indices

	Money wage (average)	Consumer price indices		
		Urban	Rural	All
1990	2140	165.4	165.1	165.2
1991	2340	173.8	168.9	170.8
1992	2711	188.8	176.8	181.7
1993	3371	219.2	201.0	208.4
1994	4538	274.1	248.0	258.6
1995	5500	320.1	291.4	302.8
1996	6210	348.3	314.4	327.9
1997	6470	359.1	322.3	337.1
1998	7479	356.9	319.1	334.4
1999	8346	352.3	314.3	329.7
2000	9371	355.1	314.0	331.0
2001	10870	357.6	316.5	333.3
2002	12422	354.0	315.2	330.6

Note: In the available data series, the base-year is 1978 for the urban index and 1985 for the other two indices. We have converted the available urban index series to a series with base year 1985.

Source: NBS, *China Statistical Yearbook*, 2004 (CD-ROM), Table 9-2.

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