Economic Transition and Labour Market Adjustment in China:

An Exploratory Essay

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1   Introduction

China's rise as a major economic power over the past three decades has been underpinned by a large

transfers of labour from the rural- to the urban-economy and a significant reallocation between state-

owned and non-state sectors within the latter. Since the early 1980s, over 100 million people have

left their native villages to work in the cities: the largest ever peacetime movement of people in

history.[1] In addition public enterprise reforms have added over 40 million workers to private sector

labour supply. In recent years there have been growing concerns in China policy circles as to

whether this easy phase of economic transition fueled by surplus labor is rapidly coming to an end

(Garnaut and Huang 2006, Hauseman *et al.* 2006, Seibert 2007, Islam and Yokoda 2006).   This

concern is based on steep wage increases in urban formal sector as revealed by Chinese official wage

data and scattered cases of labour scarcity in rapidly growing coastal provinces reported in the

business press. The purpose of this paper is to contribute to this debate by examining employment

and wage trends in China in the context of ongoing structural changes and labour market transition

over the past three decades.

There is a large literature on labour market reforms and performance in China.[2] The

overwhelming majority of the existing studies have, however, focused, in a repetitive fashion, on

particular micro aspects of labour market performance. It is not uncommon in this literature to

examine a particular issue (such as whether migrant workers are poorly paid relative the permanent

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[1] Data reported in this paper, unless otherwise stated, come from The China Statistical Yearbook, Beijing: National Statistical Bureau.

[2] Zho (2005) provides a comprehensive survey of this liberate up to about 2003. For more recent collections of papers, which also provide extensive listing of the related literature, see Shi and Sato (2006).

city dwellers) in isolation and make policy inferences, ignoring the fact that the issue under discussion is an integral part of the on-going process of transition growth, not a structural phenomenon. Very few attempts have been made to offer an overall picture of the evolving labour market conditions and their implications for the future growth trajectory and for national development policy. Filling this gap in the literature is important because the evolving labour market conditions and policies impacting on labour allocation have a profound impact both on the growth process and economic wellbeing of the nation. If the economy is rapidly moving away from the initial surplus-labor conditions, then there is a clear national need a greater emphasis on setting the stage for sustained growth trough capital deepening and technical progress. On the other hand, if surplus labour conditions still persist contrary to what the readily available data suggest, a policy shift in that direction could run counter to the objective of achieving rapid, equitable growth. Apart from its relevant for China's national development policy, a systematic analysis of China's labour market situation is vital for informing the contemporary debate on the role of China in the evolving international economic order.

The analytical framework for the study is provided by the celebrated Lewis model of economic growth with unlimited supplies of labour ('Lewis model', for short) (Lewis 1954, 1958 and 1979,), which has been extensively used, with appropriate modifications, in analysing the process of modern economic growth in Japan and the newly industrializing economies in East Asia (Eg, Minami 1973 and 1986, Fields 1994, Ranis and Fei 1975, Ranis 1993). The model starts with the assumption of a closed dual economy with a 'modern' (capitalist) sector and a 'subsistence' (traditional) sector characterised by surplus labour.[3] In the modern sector profit maximization rules

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[3] In many applications of the Lewis model the 'subsistent sector' has been treated as conterminous with 'agriculture'. This alternative terminology is misleading; it ignores unemployed and underemployed labour in the small-scale non-agricultural and informal sectors which form part of the labour reserve (Lewis 1958).

and labour is paid the value of its marginal product, as postulated in neoclassical economics. In the subsistent economy the wage rate is institutionally determines at or near the subsistence level along the tradition of classical economics. The modern sector can hire workers at a fixed wage rate which is set slightly above the subsistent rate to compensate for the higher costs of town- over rural-file. Given the ample availability of labour at this wage rate, Capital formation and technical progress in the modern sector do not raise wages but increase the share of profits in the national income. Suppose that some 'disturbance', such as a policy-regime shift from plan to market (as occurred in China in the late 1970s) or technical change that increases industrial efficiency triggers an expansion production in the modern sector. As output expands, profits increase while wages remain constant, leading to a continuous upward shift of the demand for labour. The growth process continues as a positive feedback process—increased profits, reinvested profits, further industrial expansion and further employment expansion—up to the point where surplus labour pool in the subsistent sectors is depleted. This is the famous 'Lewis turning point'. From then on, wages in the two sectors begin to move toward maintaining parity and the economy begins to look very much like a developed economy. After the turning point is reached, the dualistic nature of the economy disappears and the subsistent sector become a pat of the modern economy in which the wage rate and per capita income continue to rise along the upward-sloping labour supply curve.

The basic model can be extended to the international sphere without changing its basic structure (Kindleberger 1967, Ranis and Fei 1975, Lewis 1979). An open economy provides the setting for a neo-classical response to factor endowments and relative factor prices. For the surplus labour economy, this means greater opportunities for output expansion through the export of goods that are intensive in unskilled labour. Thus, the combination of modern industrial technology, low wages and a highly elastic labour supply produces a high rate of profit, translated into a high growth rate through increased capital accumulation. Foreign capital is also attracted by the high profit rate,

thus speeding up transition growth towards the turning point. As the world division of labour becomes more finely articulated, the importance of labour cost as a determinant of international location of production gains added importance, widening opportunities for export-oriented industrial expansion. After reaching the turning point, domestic firms would begin to look for cheap labour beyond the broader of the country; bring in bring in cheap immigrant labour and/or relocate their factories in other countries where labour is plentiful and cheap.

Several qualifications regarding of the Lewis model should be mentioned briefly (Rosenzweig 1988). It has often been pointed out that the 'dual economy' assumption is rather restrictive and unrealistic, given that labour markets are often fragmented into many parts. Another criticism is that the actual labour market conditions in most developing economies do not warrant the assumption of perfectly elastic labour supply in the subsistent economy. For our purpose, these criticisms of the model's micro-foundation are not disturbing ones; the intended purpose of the Lewis model, and the purpose to which we put it here, is to provide a *macro-theoretic framework* to analyse the role of labour supply in economic transformation from a historical perspective. In studying the dynamic transition growth the assumption of a unique duality and perfectly elastic labour supply are merely for analytical convenience. 'If [the economy is] fragmented – irrespective of the number of parts, then the simplifying assumption to make is dualism' (Basu 1997, 152). Regarding the elasticity of labour supply, 'we need not make a pettish of "infinite" elasticity; "very large" would do just as well for our purpose' (Lewis 1979, 218).

A systematic quantitative appraisal of labour market conditions in China is hampered by the paucity of data on many key variables and the poor quality of the available data. There are no data available, for example, on the skill composition of workers, wages of agricultural and urban unskilled workers, and published data on urban employment do not single out migrant workers which are essential for a systematic analysis of the existence of excess labour supply in the economy.

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At the same time there are also important issues of data quality and consistency, which largely reflects the remaining legacies of the statistical system evolved in the command economy. A major limitation is the excessive focus of Chinese published statistics on urban industrial workers, to the near exclusion of detailed data on the more numerous manufacturing employees working outside the administrative boundaries of cities. Even within the cities, data collection and reporting remain concentrated on the rapidly declining state-owned and urban collective-owned manufacturing enterprises, giving short shrift to the thriving, growing, dynamic private manufacturing sector' (Banister 2005a and 2005b). Difficulties also arise from technical issues, notably the growing institutional complexities of the Chinese economy and also from the politicization of economic data, especially at the provincial and local levels (Rawski and Xiao 2001). Given these data problem, what we aim in this paper is to undertake an exploratory analysis of the broader contours of recent developments in Chinese labour markets with a view to inform the policy debate and to help explore avenues for further research. The empirical core of the paper consists of a careful analysis of the overall labour market conditions and wage trends using readily available official data, while playing attention to their limitations, and an econometric analysis of wage determination using a hither-to-unexploited data from a recent household survey. Where relevant, we also draw upon the existing micro-economic literature to identify key aspects of labour market performance as they relate to the debate on the description of surplus demand conditions.

The paper is organized in four sections. Section 2 sets the stage for the ensuing analysis by providing an overview of the initial labour market conditions and the key elements of labour market reforms. Section 3 examines labour supply and deployment patterns in the reform era with a focus on changing labour surplus conditions. Section 4 probes the apparent inconsistency between rapidly growth in aggregate urban wage rate and the prevailing labour market conditions. Sections 5 presents the results of an econometric analysis based on wage function estimation with a view to

providing further insights into inter-regional wage differentials and wage gaps between migrant and non-migrant workers. Section 6 summarises the key findings and policy inferences.

2. Initial conditions, Reforms and Labor mobility

On the eve of reforms, the economic of China, as it had evolved over four decades of central planning, was a classic example of a dualistic, labour surplus[4] economy (Eckstein 1977, Putterman 1992). Stringent controls on migration of labour from the countryside to the urban areas meant that most rural labour was bottled up in relatively low productive farming and small-scale rural industry. When the People's Republic was formed, there was considerable open unemployment in Chinese cities and industrial centers and a great deal of underemployment in the rural areas. Unemployment in the Chinese cities persisted through most of the 1960s even during the period of most rapid industrialization in the 1950s. Therefore, unlike in Russia there was no need to draw upon the reservoir of labour in the countryside. Moreover, the sate enforced barriers on rural-urban migration in order to preserve urban enmities for the intended beneficiaries. In the 1950s, the government established the *hukou* system of household registration, confining people to the village or city of their birth, to ensure enough agricultural labour to produce sufficient grain to support the industrial and urban sector (Chen and Selden 1994). Under this policy rural and urban markets became totally segmented, with much of labour assigned to its place of work. Also, to the extent that rationing was more pervasive workers could not obtain housing in the place moved to unless the move was authorized.

From about the early 1980s, China has gradually reduced institutional barriers to internal migration (Meng 2000, Tao 2006). With the introduction of the household responsibility system

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[4] * Surplus labour' exists when roughly the same level of output can be maintained by a smaller labour force with some organizational reform and very little investment.

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during the 1970s and early 1980s, farmers had more freedom to allocate their labour to off-farm activities. The government responded by relaxing its rigid regulations on labour deployment in rural areas. In 1983, farmers were permitted to engage in transportation and marketing of their products beyond local markets; it also permitted setting up of cooperative ventures and employment of labour. These initiatives set the stage for rapid development of rural labour markets. Fast growing Town and Village Enterprises (TVEs) soon became the initial destinations of migrant workers, absorbing a large number of farmers freed by rising labour productivity on the firms (Garnaut and Ma 1996).

Following broadening the reforms to the urban sector and the creation of Special Economic Zones in the second half of the 1980s, farmers were allowed to work in cities under the condition that they had to provide their own staples. Subsequently, gradual dismantling of the food rationing/coupon system facilitated migration by enabling individuals to buy food at market prices. Since the early 1990s, various measures have been introduced to further relax the hukou system and to encourage greater rural to urban labour mobility (Naughton 2007, Chapter 8). Both the central and local governments have introduced various measures to encourage labour mobility both between rural and urban areas and across regions. Some cities have adopted a selective migration policy, issuing permanent residency to migrants who paid a fee, invested in local businesses, or bought expensive housing in the city. From 2001, in most small towns, minimum requirement for receiving the local hukou is that the applicant has a permanent source of income and legal housing locally. In addition, lifting restrictions on house ownership, employment policies, the lifting of rationing and the expansion of the urban nonstarter sector has made it easier for migrant workers to live in cities. Increased commercialization of the urban housing system, fast expansion of the urban private sector, and the rapid evolving migration network linking cities and villages have made it easier for rural migrants to seek employment in cities.

Wage reforms in the urban economy began in the early 1980s by introducing a flexible labour management strategy under which urban job seekers were allowed to find jobs in the state, collectives, or in private enterprise. The adoption of this recruitment system known (the 'three channels of employment combined') marked a significant departure from the from the labour deployment patterns in the planned economy era. A labour contract system introduced in 1983 provided firms with more autonomy in hiring workers on short-term contracts. The traditional tenure arrangement in SOE employment began to crack from about 1993, when managers were allowed to lay off redundant workers: as long as urban unemployment remained within specific limits. Under the new managerial responsibility system, SOE managers were provided with additional wage discretion and wage flexibility. The tenure system then eroded rapidly, with massive segments of the urban workers were forced into a new arrangement called *xiagang* or furlough. Under this new arrangement, workers need not report to work but retain residual ties with their firms, from which they are entitled to (but do not always receive) small stipend and fringe benefits (Rawski 2006, p23).

In 1994, the government embarked on SOE reforms. Because of privatization (mostly mall- and medium-scale OSOES) merger and closing down of loss-making ventures the number of state-controlled firms has dropped from 300,000 a decade ago to 150,000 in 2005 (*Bergsten et al*. 2006, 23/24). This counteraction in the number of SOEs, coupled with downsizing and restructuring of the existing SOEs had resulted in a dramatic decline in SOE employment, from a peak of 113 in 1995 to 65 million in 2005, augmenting urban labour supply. However, despite reforms over the past two decades, most SOEs still remain over-staffed and their remuneration practices are far from being subject to market discipline (Naughton 2007, Chapter 8).

In sum, the economic reforms of the past two decades have gradually loosened restriction on labour mobility across sectors and industries in the Chinese economy. However, the labour market

is still remain highly segmented, with various obstacle to labour mobility between the urban and rural, and the formal and the informal sectors In particular, there are still serious labour market distortions related to the *hukou* system, and the provision of pension, medical and unemployment benefits. A key feature of *hukou* is that registration is both for a specific location and for a specific status, either urban or rural. Only those with urban residence permits – popularly called urban Hukou – have the right to live permanently in cities. Since the 1980s, access to Hukou has been substantially liberalized, but the Hukou still exists, its possession still makes a difference. The wealthy or highly educated can obtain Hukou and can move their Hukou from town or small cities to a large city. But it is not easy for the majority of citizens to obtain Hukou (Wu and Trieman 2004, Liang and Ma 2000, World Bank 2005).   Despite significant reforms over the past one-and-a-half a decade, the SOEs sector, where employment and remuneration practices are far from being subject to market discipline, still provide employment to nearly one-fifth of the urban labour force.

3   Labour Supply and Employment

China embarked on market-oriented reforms at a time when population growth had begun to decline as a result of the rigid implementation of the population control policy in the early 1970s. Average annual population growth rate declined from 1.4% during 1985-95 to 0.87% during 1995-2005 (Table 1). China's current population is 1.31 billion and at the current trends it is expected to stabilize around 1.5 billion by 2025 (Tao 2006, Table 8.2)[5]. Working age population (people in the age bracket 15-64, the potential labour force) had grown much faster than population, producing the so-called 'population dividend', as birth rate decline and young adults increase more rapidly than dependent children and dependent elders. During 1995-2005, annual average growth of working age population was 1.4% compared to 0.9% growth in total population. The labour force has increased

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[5] based on population projections by China Population Information Centre

even faster, from around 429 million in 1985 to 810 million in 2005, reflecting persistent increase in the labour force participation rate (from 72% in 1985 to 88%). The working age population is projected to increase from the current level of 925 million to 1018 million in 2025.

Employment expansion in China has not kept pace with the growth in labour force. Total rural employment (which presumably include significant number of underemployed workers, as discussed below) remained virtually stagnant around 490 million over the past one-and-a-half decades. Employment expansion in the emerging private sector in the urban economy, both in foreign invested enterprises (joint-ventures + fully-owned foreign firms) and local private firms (including urban informal sector employment) has been impressive; total employment of these firms increased from 65 billion in 1990 to nearly 182 million between 1990 and 2003 (Table 2). However total employment in the urban economy has grown at a much slower rate (from 170 to 256 million) because of massive contraction in employment in the SOE sector. Total employment in SOEs declined persistently from 113 million in 1990 to 66 million in 2005. The employment elasticity of economic growth (that is the percentage increase in employment linked to one percent increase in GDP) remains low, fluctuating between 0.1 and 0.2 during 1990-2001 (Brook and Tao 2003).

Surplus Labour in the Urban Economy

The combination of natural population increase and rural-to-urban migration has resulted in continued addition to the urban labour supply. Also, restructuring and downsizing of SOEs, mostly located in urban areas, has led to massive layoffs. As discussed, employment growth in the emerging private sector, though impressive, has not kept pace with the increase in urban labour force. Consequently China's cities now confront large-scale open unemployment.

The official (registered) urban unemployment rate published by the National Bureau of Statistics (NBS)[6], which remained within the narrow margin of 2.3 to 2.3 in the 1990s increased from 3.3 to 4.2% in 2005 (8.4 million unemployed workers) (Figure 1). Data on provincial-level unemployment from the same source generally show higher unemployment rates in recent years in labour-sending interior provinces compared to fast-growing coastal provinces (Table 3). However, there are strong reasons to believe that the official data grossly understate the level of unemployment for several reasons. First, the data reporting system covers only the age range 16-50 for men and 16-45 for women, so exclude men over 50 and women over 45. Second, a large number of workers laid-off from SOEs are regarded as still employed by their former enterprises. Third, many unemployed people do not have incentives to register themselves at the local employment service agencies because they do not qualify for social security payments or do not have the required qualifications to find employment through such formal mechanisms. Fourth, unemployed persons without urban resident status (migrants) are automatically excluded from the registration system, and therefore the bulk of the 'floating population', which form a large and growing segment of the urban labour force, is not captured in these data.

According to estimates based on data from the Survey of Population Changes (SSPC) conducted by the NSB (which is based on the ILO recommended definition of employment/unemployment and is not subject to the limitations discussed above), the urban unemployment rate rose from 3.4% in 1995 to 7.7% in 2000 and then slightly declined to over 6% in 2002 and 2003. (Tao 2006, Table 8.6). A survey conducted by the Institute of Population and Labour Economics of the Chinese Academy of Social Sciences during September 1996 and January

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[6] According to the definition used by NBS, the unemployed persons are men in the in the age goop of 16-50 and women in the age group of 16-45 female who hold urban residential permits (urban *hukou*), able to work, unemployed but willing to be employed in nonagricultural activities and are registered at the local employment services agencies.

2002 in five major cities (Fuzhou, Shanghai, Shenyang, Xian and Wuhan) has come up with an average unemployment rate of 8%, with rates as high as 14% in some localities (Hu 2007).

Unemployment in Rural Areas

At the end of the planned economy era in 1978, 71% of the workforce was involved in agriculture. The absolute number of agricultural workers reached a peak of 391 million in 1991, and it has since started its long steady decline.   By 2001, 33% of rural employment was non-farm and half of the income in rural areas was generated by non-farm activities (Cooper 2006).   The share of agricultural employment in total employment has been consistently and significantly higher than the share of agriculture in GDP.   Most of the workers in agricultural pursuits are essentially underemployed: according to officials estimates, over 130 million rural people lack sufficient land or employment opportunities to guarantee their livelihoods (World Bank 2005),   In addition to farmers who are underemployed, open rural unemployment has also risen in rural China in rent years.   The rural unemployed includes farmers who became dispossessed though land requisitions, workers who are laid off from TVEs, and rural cadres and teachers who are laid off on account of ongoing tax reforms and local government restructuring (Tao 2006, 527-28).

No data on rural employment and production are available for a systematic quantification of surplus labour in the rural economy in China.   A recent OECD study has come up with some tentative estimates comparing the average labour productivity of non-agriculture and that of agriculture (OECD 2002). When the average productive of nonagricultural was used as a benchmark, rural hidden unemployment was found to be as high as 275 million. When the benchmark was set at a more modest level of one third of the productivity of nonagricultural workers the estimate came down to 150 million.

The mere presence of surplus labour does not, however, imply that these surpluses are readily available for urban employment. This is because the migratory decision depends on both economic and non-economic consideration. A study of the migration behaviour of rural people and their earnings, using 1995 household survey for rural Sichuan province – the most populous and predominantly rural province in China – finds that although migration yields a large monetary premium, rural people will choose to stay in rural areas than migrate under current regulation and conditions (Zhao 1999). According to this study, the major deterrent to migration is the lack of safety during transition and in destination cities as well as forced separation from families, unavailability of suitable housing in destination cities. A large part of these problems stems from the fact that rural migrants are denied the legal right to reside permanently in cities. An important implications of the findings of this study, which has also been confirmed by a number of subsequent studies (as surveyed in Zhao 2005), the number of migratory workers would be higher is the absence of artificial barriers to migration.

4.   Wage trends

We have observed in the previous section that surplus labour conditions still remains in the Chinese economy. Are the trends and patterns of wage behaviour in the Chinese economy are then consistent with the predictions of the Lewis model? If not, how can we explain the 'Chinese wage puzzle'?

Data on real wage behaviour in a urban sector compiled from NSB sources are plotted in Figure 2. It is evident that real wages in all three ownership categories— SOEs, collectively-owned firms and private-sector firms[7]—remained virtually stagnant well into the mid-1990s (Figure 2). Since then there has been a persistent increase across.

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[7] Collectively-owned firms include various enterprises with collective ownership of production means such as enterprises run by townships and villages, collective enterprises run by cities, counties and towns

It is important to note that these date on urban wages would distort the picture by incorporating changes in output and therefore the skill mix (Ranis 1993, p 514). Also, they tend to be biased by embodying significant wage premium for workers in multinational affiliates and large domestic firms. A more meaningful analysis therefore requires data on unskilled-worker wages or wages of rural migrant workers engaged in the urban informal sector. Chinese official data are particularly problematic; they cover only on the upper strata of urban labor markets and therefore cannot reflect changes in wages and labour conditions in labour intensive industries in China's developed regions. Moreover the magnitude of this omission has increased over time with the sharp increase in rural-urban migration.

These limitations notwithstanding, a careful analysis of official wage data disaggregated by ownership and at the provincial level do point to the fragility of any inferences based on the aggregate series. To comment first on data by ownership categories, among the for ownership categories, wage growth of SOEs has outpaced that of urban collective sector and of private firms (where wage-setting is relatively more market-based) by a significant margin. During 1995-05, the real wage rate of SOE grew at an average annual rate of 10.7% compared to 7.4% of private firms and 8.3% of collective. The SOE wage bill includes additional payments in the form of pension, healthcare and housing (Zhao 2002). Moreover, since the late 1990, SOE worker salaries and wages have been periodically increased substantially as part of the expansionary macroeconomic policy of the government (Rawski 2006). The growth of non-SOE real wage (estimated by purging the SOE wage rate using employment share weight) for the period 1995-05 turns out to be 7.2% compared to the average rate of 10.5% recorded by the reported series.

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and neighborhood companies. Private-sector firms ('other ownership units') cover pure local companies, foreign-invested enterprises (FIEs) (both joint ventures and fully-foreign owned firms and firms onewd by entrepreneurs from Hong Kong, Macco and Taiwan (NBS, *Chain Labour Statistics Yearbook* 2005)

Data on real urban wages at the provincial level (covering all provinces for which data are readily available) from the same source are reported in Table 4. The data shows significant increase in real wages across all provinces over from about the mid 1990s. However, this overall pattern does not tell anything definitive about labour market tightening. There are reasons to believe that wages in different sectors generally move together, even in situations whether labour is 'surplus' in the sense that the marginal product is zero. If many 'surplus' workers are in activities where work and income are shared, so compensation is related to average, not marginal product, then any increase in average product will raise their reservation wage. When workers are drawn into the manufacturing sector, the number of workers in informal, income and work sharing sectors declines, their average wage product and reservation wage rises: as a results wages thought the economy will increase.

So what is important is the relative rate of wage growth and the differences in relative wage levels. The data in fact points to vast differences in the magnitude of wage growth across provinces. Wage growth in faster growing coastal provinces (such as Guangdong, Shanghai, Guangxi), have been much faster compared to that of labour-sending interior provisions (such as Sichuan, Gansu Qinghai). Figure 3 which compares real wages of Sichuan (by far the largest source of migrant labour) and Guangdong (the fastest growing and labour-absorbing province) illustrate the points. In the late 1980s, there was not much difference in the wage levels in the two provinces. During the next one-and-a-half decades growth rate of wages in Guangdong was almost twice faster compared to that in Sichuan.

So far we have examined trends and patterns of urban wages using official data from the *Labour Yearbook.* We now turn to examining official dada on wages of workers in town and Village

Enterprises available from another official source (*Town and Village Enterprise Yearbook*).[8] Presumably TVE dada better reflect labour market conditions facing urban unskilled workers compared to the aggregate wage series or wages relating to workers in other types of firms (Banister 2005b, Cooper, 2006). Apparently, virtually all of China's manufacturing enterprises and factories located outside strict city limits are lumped together under the category 'town and village enterprises' (TVEs). Both foreign and domestic manufacturers who are eager to keep down their costs (requirements to pay social insurance and other welfare obligations) and statistical requirements prefer that their factories be classified as rural or TVE. The majority of TVEs are overwhelmingly (about 94%) are located in rural areas and they employ largely unskilled rural workers whose employment decisions are presumably closely tied to agricultural income.

Real annual wages of workers in all urban enterprise, urban private enterprise and TVEs over the period 1987-2002 are compared in Figure 4. During this period the average real wages of TVE workers rose at only an average annual rate of 5.8% compared to .7.6% growth in the average real wage rate of all urban enterprises and 6.2% in urban private enterprise. More importantly, data point to a vast wage gap between TVEs, and urban enterprise and this pas has remained virtually unchanged through. During 2000-02 the average TVE wage rate amounted to 53% of that of all urban firms and 48% of that of urban private firms. According to data at the provincial-level data (not reported here for brevity) these gaps are much wider in rapidly-growing costal provinces compared to the labour-sending interior provinces. It seems that China's labour market conations enable firms to achieve significant cost advantages by manipulating the existing institutional procedures to achieve TVE status.

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[8] In the Chinese national data reporting system, TVEs are treated as part of the rural economy and therefore wages of workers employed in these enterprises are not covered in the reported data urban wages.

The discussion so far suggest that even the official data, when analysed at the disaggregate level, do suggest significant continuing duality and surplus labour conditions in the Chinese labour market. The few available studies which have specifically looked at relative wages unskilled workers and migrant workers provides further support for this inference. For instance a study of wage behavior in Guangdong found that between 1992 and 2002 real wages of migrant workers had hardly rise (Qin 2003). Using a survey of residents in the Hubei province, a major labour-sending province, Zhu (2002) found, after controlling for skill differences, that the wages of workers who had migrated to the city were almost twice as high as those workers who had remained in the country side. In a survey of the floating population in Shanghai province, Meng and Zhan (2001) found a clear division between floating population and local residents both in terms of work conditions and wages. In a recent study, Meng (2007) examined wage patterns of unskilled workers over the five-year period from 2000 to 2004 using a unique data set extracted from payrolls of seven large manufacturing factories in Guangdong province. A simple comparison of wages showed that real wages of production workers increased at an average annual rate of of only 3.5% compared to a rate of over 6% for the total sample of workers. Once controlled for education, period of employment and other variables that could affect wage level, the average annual growth rate for the unskilled workers turned out to be negative or near zero.

Functional share of labour in value added:

How has the surplus-labour conditions in the Chinese economy reflected in the functional distribution of income in domestic industry? The data of the labour share in valued added plotted in Figure 4 provided important insight into this issue. Overall, the patterns shown by the data are quite consistent with the Lewisian prediction of persistence of high profits in a surplus labour economy.

In the mid-1990s, labour received about half of total industrial value added. This share declined persistently to about 42% by 2005. The disaggregated data clearly suggest that the aggregate wage share is heavily influenced by the functional distribution of income in SOEs, whose employment practices have continued to be influenced by non-market consideration. Wage share in private enterprises (encompassing FIEs and domestic private enterprises, which operate under competitive conditions) in 1999 was 22% (compared to 34% of SOEs) and it declined sharply during the ensuing years, reaching 12% in 2006. These figures are remarkably low by the standard of mature industrial countries, but quite consistent with the available evidence on the functional distribution of income in the late 1940s through early 1960s Hong Kong, when the labour intensive growth there was fueled by massive influx of workers (refugees) from the Chinese mainland (Chow and Papanek 1981, Athukorala and Manning 1989). Some recent firm-level studies of Chinese manufacturing performance have also reported estimates which corroborate the private-sector wages shares reported in Figure 4 (Bergsten *et al* 2006, Chapter 3, Fukoa et al. 2007)

Of course, the degree of elasticity of labour supply is not the sole determinant of the functional distribution of income.[9] For instance, during the early transition period, when the wage is relatively stable, labour share in value added could decline (increase) whenever its average productivity increases (decreases). If technological change is biased in a labour saving direction (that is, a change contributing to a slower labour absorption), labour productivity will increase, leading to a decline in labour share in value added and a less equitable pattern of family income distribution (Fei *et al*. 1985,

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[9] Labour share in value added in industrial activity (wB/Y, where w wage rate, B the size of the industrial labour force, Y industrial value added) is equal to the ratio of the real wage to average industrial labour productivity (w/ρ, where $\rho = Y/B$ = average labour productivity).

Minami 1973). However, the contrasting patterns in labour share in value added among the three ownership categories is not supportive of such alternative inference; as we have noted the labour share of valued added of private-sector enterprises has been much lower and declined faster over the years compared to SOEs, even though total labour absorption in the former have increased at a much faster rate. All in all, the data seem to suggest that surplus labour conditions in China still remain highly favorable for private sector industrial expansion, notwithstanding some reported isolated cases of labour scarcity.

5. Wage Differentials between Regions and between Migrant and Non-migrant Workers

The purpose of this section is to supplement the annalistically narrative of labour market conditions in the previous sections by an econometric analysis of wage determination. In this section we specifically investigate whether the coastal-inland wage gap in China widened from the 1980s to the 2000s. We also evaluate the size of the wage gap between migrant and non-migrant workers. Our analysis in this section uses the results of the wage function estimation conducted by Yuan and Sato (2007).[10]

The Data

Estimation of the regional wage function estimation is based on data from surveys conducted by the Institute of Economics of the Chinese Academy of Social Sciences (CASS) in 1988, 1995 and 2002 as part of its Chinese Household Income Project (CHIP) (hereafter refer to as CHIP CASS surveys).[11] The 2002 survey covers cities in 10 provinces (Shanxi, Liaoning, Jiangsu, Anhui, Henan, Hubei, Guangdong, Sichuan, Yunnan, and Gansu) and Beijing and Chongqing. The regions covered by the 1988 and 1995 surveys are almost identical except that in the 1995 survey Chongqing and in the 1988 survey Chongqing and Sichuan are not included. Both the 1988 and the 1995 survey are on city resident households. These data are supplemented by a fourth dataset consisting of a supplementary survey newly introduced in 2002 (the *Rural-Urban Migrant Household Survey*) on households consisting of non-city residents who temporarily live in cities.

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[10] Although there are many preceding studies on wage differences among workers in China, most of them only examine wage differentials in the same region and do not focus on coastal/inland wage differentials. See, e.g., Knight et al. (1999), Meng (2001), Meng et al. (2001), and Ma (2007).

[11] For detail about these surveys, see Li et al. (2007), Khan, Griffin, Riskin and Zhao (1992), and Khan and Riskin (1998, 2005).

Wage data relate to household members who were employed as full-time workers. Owners of firms, employed family members, and executives are excluded from the dataset. Wages are defined as the the sum of standard monthly wage payments plus additional allowances. Workers whose wage rate falls into the top and bottom 0.5 percentiles and for whom necessary data for the estimation of wage functions are not available are excluded. As a result, the number of resident city workers for whom data are available is 17,078 for 1988, 9,621 for 1995, and 5,820 for 2002, and the number of non-city resident workers (hereafter, "migrant workers") for whom data are available for 2002 is 3,321.

In the case of the 2002 survey, 98% of city resident workers in the sample have an urban family registration in the same district where they live, 1% have a rural family registration in the same province where they live, and 1% have their family registration in another district than where they live. It is important to note that, given the large-scale migration in recent years, there must be many city resident workers who are not covered in the CHIP CASS surveys. Among the observations for 2002, 68% of city resident workers are regular workers, 31% are non-regular workers with an urban family registration who have either a short-term labor contract or no labor contract, and 1% are non-regular workers with a rural family registration. In the case of the data on migrant workers for 2002, 94% are non-regular workers and 96% of workers have a rural family registration.

Descriptive Statistics

Figure 5 shows the regional distributions of the four datasets, i.e., the three datasets on city resident workers in 1988, 1995 and 2002 and the supplementary dataset on non-city resident workers in 2002. Except in the case of Chongqing and Sichuan, the four datasets on city resident workers in 1988,

1995 and 2002 and non-city resident city workers in 2002 seem to have a similar regional distribution. We define the coastal region as consisting of Beijing, Jiangsu, Guangdong.

Figure 6 shows the industry distributions of the four datasets. In the case of the three datasets on city residents, more than 40% of workers were employed in industry 2 (manufacturing and electricity, gas and water supply)., The percentage of workers in several service sectors, such as industry 7 (real estate, public utilities, personal and consulting services), industry 5 (transportation, communications, postal services and telecommunications), industry 4 (construction) and industry 11 (finance and insurance) increased significantly from 1995 to 2002. At the same time, the percentage of workers in public sectors, such as industry 8 (medical services, hygiene and social welfare), industry 9 (education, culture, arts and broadcasting), and industry 12 (government and party and social organizations) declined sharply. In the case of the dataset on migrant workers for 2002, only 10% were employed in industry 2 (manufacturing and electricity, gas and water supply). 47% of migrant workers were employed in industry 6 (commerce and trade, restaurants & catering, materials supply, marketing, and warehouses).

Figures 7 and 8 show the frequency of observations by age group and wage rate level. In the case of migrant workers, the share of older workers is very low. Only 20% are over 45 years old. Figure 9 shows the distribution of observations by education level. In the case of migrant workers, only 3% are collage graduates.

Results

Using the estimation results on wage functions obtained by Yuan and Sato (2007), we can study wage differentials between regions and between migrant and non-migrant workers for 2002. In the case of non-migrant workers, we can also analyze how regional wage differentials changed from 1988 to 2002.

Table 6 shows the definitions of the explanatory variables. The shaded rows denote the standard cases, i.e., these dummies are omitted in the specification. The results for the estimated wage functions are shown in Table 7. Equation 1 represents the estimated wage function with the coastal region dummy, the migrant worker dummy, and the cross term of these two dummies. The dependent variable is the log value of the wage rate of each worker. Equation 1 is based on the combined data of non-migrant and migrant workers for 2002. According to this result, non-migrant workers receive an 18% higher wage than migrant workers in the coastal region and a 16% higher wage than migrant workers in the inland region. Moreover, migrant workers in the coastal region receive a 30% higher wage than migrant workers in the inland region. In the case of non-migrant workers, workers in the coastal region receive a 32% higher wage than workers in the inland region.[12] As we have seen in Figure 5, the geographical distributions of non-migrant and migrant workers are not identical. This difference in geographical distributions may cause some biases in the estimated coefficient of the dummy for migrant workers in Equation 1. In order to address this problem, Yuan and Sato (2007) also estimated wage functions with province/municipality dummies. According to this result, non-migrant workers receive a 15% higher wage than migrant workers. This result is similar to the corresponding result of Equation 1.

To sum up the above result, there are substantial wage differentials both between migrant and non-migrant workers and between the coastal and the inland region. The regional wage differentials are about twice as large as the migrant/non-migrant wage differentials. Furthermore, the magnitude of the regional wage gap among migrant workers (measured as the ratio of the coastal wage rate over the inland wage rate) is at almost the same as the regional wage gap among non-migrant workers.

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[12] Yuan and Sato (2007) estimated a wage function with additional dummy variables, including a regular worker dummy and dummies for different job categories, but the main results on coastal/inland and migrant/non-migrant wage differentials remained unchanged.

In Equations 2 and 3 in Table 7, the wage function for migrant workers and that for non-migrant workers are estimated separately. The results are consistent with the result of Equation 1. The magnitude of the coastal/inland wage gap among migrant workers (31%) is almost the same as the coastal/inland wage gap among non-migrant workers (32%). It is interesting to note that the male wage premium and the wage premium for workers at foreign firms are much higher in the case of migrants than in the case of non-migrants. On the other hand, the college premium for migrant workers is much smaller than that for non-migrant workers.

As we have already pointed out, the CHIP CASS surveys do not seem to adequately cover city resident workers who do not have an urban family registration. Our "migrant workers" are non-residents who temporarily live in the cities surveyed. If a worker without an urban family registration stays in a city, he or she will become a city resident in less than one year and will usually experience gradual wage increases. Therefore, there is a risk that we overestimate the wage differentials between non-migrants and migrants. We should also note that in the data set, 68% of non-migrant workers were regular workers, who are expected to receive higher wages partly because of the accumulation of firm-specific skills. In contrast with this, most migrant workers are non-regular workers. Taking account of these factors, it seems that the wage gap between migrant and non-migrant workers, part of which can be attributed to the family registration system in China, is not large.

On the other hand, we observe a large coastal/inland wage differential. Probably we can attribute the regional wage gap to several factors, such as regional differences in the consumer price level, the economic and social cost of migrations (moving costs, the risk of being unemployed in the coastal region, etc.), and institutional obstacles to migration. For example, there is a huge gap in the price level between the coastal and the inland region.

In order to analyze regional price gaps, we estimate price differences between provinces and municipalities in China for 2002. We use consumption price level data of 35 commodities and services (20 food items, 1 clothing item, 3 consumer durables, and other 11 items, such as electricity, gas, water supply, transportation, telecommunication, and medical services). We obtain the price level data and the consumption weight data for each province/municipality from the *Price Yearbook of China 2003* published by the National Development and Reform Commission and the *China Statistical Yearbook, 2003* published by the National Bureau of Statistics of China, respectively. Figure 10 shows consumer price levels by province/municipality in 2002. In that year, the consumer price level in Guangdong was 67% higher than in Gansu and 99% higher than in Guizhou. When we use the size of the sample of workers in each province in the dataset for the estimation of Equation 1 (Table 7) as weights for the aggregation and calculate the ratio of the (geometric weighted) average consumer price level of the coastal region to that of the inland region, we find that the average consumer price level in 2002 was 24.3% higher in the coastal than in the inland region.[13]

Since the price level gap is this great, it seems that we can explain a large part of the regional wage gap by economic factors, such as price gaps and moving costs, meaning that residual factors, which can be partly attributed to institutional obstacles, may not be that important.[14] Given the labor shortage in the coastal region, one of the most interesting results here is the wage gap among migrant workers between the coastal and the inland region. There still seems to be excess labor in the inland agricultural sector and it would not be costly for workers to become migrants. At the same time, private Chinese firms and foreign multinationals in the coastal region often complain about a shortage of labor, although it is not difficult for them to employ migrant workers. Therefore, the

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[13] In order to make our calculation of the price gap consistent with the result on the wage gap from the estimation of Equation 1, we calculated the price gap in logarithmic terms.

[14] It is important to note that the large gaps in regional price levels themselves are endogenously determined and may be partly caused by institutional obstacles to migration.

coastal/inland wage gap among migrant workers probably represents a good measure of the seriousness of the segmentation in Chinese labor market. We use two additional approaches to investigate this issue in greater detail.

The first approach is the Blinder-Oaxaca decomposition (Oaxaca 1973). The basic idea of the Blinder-Oaxaca decomposition is to estimate wage functions separately for the two groups (migrant workers in the coastal region and migrant workers in the inland region) and decompose the gap between the average wage rates of these two groups into three factors: the gap caused by differences in endowments, such as the education level, age, gender, etc.; the difference of the shift coefficient; and differences of other coefficients, such as the education premium, the age premium, etc.

The results of the Blinder Oaxaca decomposition are summarized in Table 8.[15] We find that the wage gap due to endowments is small. On the other hand, the wage gap due to the shift coefficient is very large. Finally, the differences of other coefficients substantially reduce the wage gap (Panel C). The separately estimated wage functions (Panel A) imply that in the case of a male 25-year-old high school graduate in a state-owned enterprise in the manufacturing sector (including electricity, gas and water supply), the coastal/inland wage gap is 41.8% (in logarithmic terms). But in the case of either female workers, older workers, or workers in industry 6 (commerce, restaurants & catering, materials supply, marketing, and warehouses) or industry 7 (real estate, public utilities, personal and consulting services), the coastal/inland wage gap is much smaller (Panel B). Because of this canceling-out effect, the average wage gap of the two groups is 29.9%. Probably, the excess labor problem in the inland agricultural sector is serious for aged and unskilled workers who are not well suited for work in the manufacturing sector in the coastal region. The decomposition results suggest that there exists a mismatch problem in the labor market. It thus appears that there is an abundance of workers of some categories and a scarcity of others.

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[15] The wage functions were estimated by Yuan and Sato (2007).

The second approach is to directly compare the average wage level in the coastal region with that in the inland region for a certain category of migrant workers. Table 9 shows the average wage of male high school graduate workers in their 20s in the manufacturing sector both in the coastal and the inland region. In the case of this category of workers, the wage gap is 35.3% (in logarithmic terms). Although the sample size is small, this result is reasonably consistent with the results of the Blinder-Oaxaca decomposition.

Next, we analyze how regional wage differentials changed from 1988 to 2002 in the case of non-migrant workers. Table 10 shows estimated wage functions with a coastal area dummy for 1988, 1995, and 2002. According to this result, the coastal/inland wage differential widened by 17 percentage points from 1988 to 1995 and narrowed by 7 percentage points from 1995 to 2002. The geographical distributions of sample workers across provinces are not identical for the three observation years. These distribution changes may cause some biases in the estimated changes of the coastal/inland wage gap derived from the estimated coefficients on the coastal dummy. In order to address this problem, we use estimated wage functions with province/municipality dummies (Table 11) and calculate the coastal/inland wage gap for the three years as the gap between the weighted average of the estimated dummy coefficients for the coastal provinces/municipalities and the weighted average of the estimated dummy coefficients for the inland provinces/municipalities. As weights, we use the provincial distribution of sample workers in the 1988 survey. According to this calculation, the intertemporal changes of the coastal/inland wage gap among non-migrant workers were more drastic than the changes implied by the estimated coefficients on the coastal dummies in Table 10. The gap widened by 21.4 percentage points from 1988 to 1995 and narrowed by 12.6 percentage points from 1995 to 2002.

Tables 10 and 11 also show interesting changes in the wage function. According to Table 10, the premiums for higher education and male workers increased by 9 percentage points and 16

percentage points respectively from 1988 to 2002. On the other hand, the age premium declined substantially from 1995 to 2002. In addition, the wage premium for workers at foreign companies declined substantially from 1995 to 2002.

6.   Concluding Remarks

(To be expanded)

China's' dramatic economic expansion fueled by massive domestic labour surpluses has not yet run out of seem.   There is still considerable room for moving unskilled workers out of agriculture into more productive economic activities in the modern sector. In addition, rural-urban labour migrations over the past two decades and labour shedding by the SOE sector has given rise to a significant additional reserve army within the urban sector.

Absorbing these labour surpluses in a gainful way is vital for maintaining the growth momentum of the economy and for poverty reduction.   This calls for further labour market reforms to removing institutional constraints on labour mobility and eschewing policies. It is also vital to avoid politically popular, but economically counterproductive, policies that artificial increase the cost of hiring workers. In this context, the government's plan to create a universal unemployment insurance scheme, and introduce retirement pensions and other social security provisions, and the proposed Labour Contract Law (which is currently in the final drafting stage) may be premature. The best social protection that the government can provide the poor with is opportunities for gainful employment, and greater labour market flexibility and enhanced labour mobility are essential prerequisites for achieving this objective.

Given the environmental considerations and infrastructure problems associated with massive rural-urban migrations, there is a strong case for renewed emphasis on rural development, in particular initiatives to spread industrialization dynamism to the country side. In this, China may

find important policy lesion from Taiwanese experience with promoting rural non-agricultural activities as part of a balanced growth process in the 1960s and 1970s. A key factor behind Taiwan's highly publicized 'growth with equity' outcome was that industrialization patterns of that country clearly avoided the customary relative (somewhat absolute) decline in rural non-agricultural activities, increasingly in food processing. Rural non-agricultural activities were not competed out of existence by favoured urban industry and services (Ranis 1993).

While the current emphasis of the Chinese government on higher education is justifiable from long term perspectives, the existing surplus labour condition in the countryside calls for a even greater emphasis on primary education.

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Table 1: China: Population Statistics, 1985-2005

	Total population (million)	Labour force		Urban population	
		Million	Population Share (%)	Million	Population Share (%)
1985	105851	50112	47.3	11882	23.7
1986	107507	51546	47.9	12639	24.5
1987	109300	53060	48.5	13435	25.3
1988	111026	54630	49.2	14100	25.8
1989	112704	55707	49.4	14601	26.2
1990	114333	65323	57.1	17252	26.4
1991	115823	66091	57.1	17805	26.9
1992	117171	66782	57.0	18338	27.5
1993	118517	67468	56.9	18884	28.0
1994	119850	68135	56.9	19425	28.5
1995	121121	68855	56.8	19995	29.0
1996	122389	69765	57.0	21264	30.5
1997	123626	70800	57.3	22592	31.9
1998	124761	72087	57.8	24041	33.4
1999	125786	72791	57.9	25317	34.8
2000	126743	73992	58.4	26800	36.2
2001	127627	74432	58.3	28031	37.7
2002	128453	75360	58.7	29458	39.1
2003	129227	76075	58.9	30833	40.5
2004	129988	76823	59.1	32081	41.8
2005	130756	77877	59.6	33479	43.0
Memo item: average annual growth (%)					
1985-95	1.36	3.33		5.4	
1995-05	0.87	1.35		5.6	
1985-05	1.06	2.28		5.4	

Source: National Bureau of Statistics, China Statistical Yearbook (various years)

Table 2: Labour Force and Employment (millions)

	1985	1990	1995	2000	2001	2002	2003	2004	2005
Labour force	501	653.2	687.4	739.9	744.3	753.6	760.8	768.1	774.8
Total employment	498.7	647.5	680.7	720.9	730.3	737.4	744.3	752.0	758.3
Urban employment	128.1	170.4	190.4	231.5	239.4	247.8	256.4	264.8	273.3
State-owned	89.9	103.5	112.6	81.0	76.4	71.6	68.8	67.1	64.9
Collective-owned	33.2	35.5	31.5	15.0	12.9	11.2	10.0	9.0	8.1
Joint units	0.0	1.0	3.7	13.4	15.2	18.3	20.7	…	…
Foreign Funded	0.1	0.7	5.1	6.4	6.7	7.6	9.6	…	…
Private funded	0.8	6.7	20.6	34.0	36.6	42.7	49.2	…	…
Residual	4.9	23.1	16.9	81.6	91.6	96.4	102.2	…	…
Rural Area	370.7	477.1	490.3	489.3	490.9	489.6	487.9	487.2	484.9
Township and village Enterprises (TVEs)	69.8	92.7	128.6	128.2	130.9	132.9	135.7	138.7	142.7
Rural private owned	…	1.1	4.7	11.4	11.9	14.1	17.5	…	…
Self employed	305.7	14.9	30.5	29.3	26.3	24.7	22.6	…	…
Residual	288.4	368.4	326.4	320.4	321.8	318.0	312.1	…	…

*Source***:**   National Statistical Bureau, *China Statistical Yearbook.*

Table 3: Registered Unemployment Rates by Province, 1995-2005 (%)

	1990	1995	2000	2001	2002	2003	2004	2005
North								
Beijing	0.4	0.4	0.8	1.2	1.4	1.4	1.3	2.1
Tianjin	2.7	1.0	3.2	3.6	3.9	3.8	3.8	3.7
Hebei	1.1	2.2	2.8	3.2	3.6	3.9	4.0	3.9
Shanxi	1.2	1.4	2.2	2.6	3.4	3.0	3.1	3.0
Inner Mongolia	3.8	3.8	3.3	3.7	4.1	4.5	4.6	4.3
Northeast								
Liaoning	2.2	2.7	3.7	3.2	6.5	6.5	6.5	5.6
Jilin	1.9	2.0	3.7	3.1	3.6	4.3	4.2	4.2
Heilongjiang	2.2	2.9	3.3	4.7	4.9	4.2	4.5	4.4
East								
Shanghai	1.5	2.6	3.5		4.8	4.9	4.5	
Jiangsu	2.4	2.1	3.2	3.6	4.2	4.1	3.8	3.6
Zhejiang	2.2	3.2	3.5	3.7	4.2	4.2	4.1	3.7
Anhui	2.8	3.1	3.3	3.7	4.0	4.1	4.2	4.4
Fujian	2.6	2.6	2.6	3.8	4.2	4.1	4.0	4.0
Jiangxi	2.4	2.1	2.9	3.3	3.4	3.6	3.6	3.5
Shandong	3.2	3.2	3.2	3.3	3.6	3.6	3.4	3.3
Central and South								
Henan	3.3	2.6	2.6	2.8	2.9	3.1	3.4	3.5
Hubei	1.7	3.1	3.5	4.0	4.3	4.3	4.2	4.3
Hunan	2.7	3.8	3.7	4.0	4.0	4.5	4.4	4.3
Guangdong	2.2	2.6	2.5	2.9	3.1	3.6	2.7	2.6
Guangxi	3.9	3.6	3.2	3.5	3.7	3.4	4.1	4.2
Hainan	3.0	4.2	3.2	3.4	3.1	4.1	3.4	3.6
Southwest								
Chongqing	…	…	3.5	3.9	4.1	4.4	4.1	4.1
Sichuan	3.7	3.7	4.0	4.3	4.5	4.0	4.4	4.6
Guizhou	4.1	5.9	3.8	4.0	4.1	4.1	4.1	4.2
Yunnan	2.5	2.9	2.6	3.3	4.0	3.5	4.3	4.2
Northwest								
Xizang	…	…	4.1	…	4.9	3.4	4.0	…
Shaanxi	2.8	3.5	2.7	3.2	3.3	3.8	3.8	4.2
Gansu	4.9	5.5	2.7	2.8	3.2	4.4	3.4	3.3
Qinghai	5.6	7.4	2.4	3.5	3.6	3.5	3.9	3.9
Ningxia	5.4	6.4	4.6	4.4	4.4	3.0	4.5	4.5
Xinjiang	3.0		3.8	3.7	3.7	2.9	3.5	3.9
Overall	2.5	2.9	3.1	3.6	4.0	4.3	4.2	4.2

…   Data not available.

*Source***:** China Labour Yearbook (various years)

Table 4: Real Wages by Province (yuan, at 1985 prices)[1]

	Hebei	Henan	Hunan	Jiangsu	Sichuan	Shanghai	Anhui	Shandong	Qinghai	Guangdong	Fujian	Jilin
1985	1075	1015	1059	1135	992	1416	950	1110	1719	1393	1059	1081
1986	1200	1099	1159	1245	1089	1589	1059	1256	1805	1469	1167	1152
1987	1223	1122	1211	1294	1100	1647	1069	1263	1793	1494	1132	1198
1988	1255	1098	1162	1298	1086	1650	1053	1328	1716	1491	1115	1188
1989	1141	1024	1070	1169	1013	1631	989	1220	1545	1453	1081	1091
1990	1258	1140	1169	1271	1091	1716	1084	1321	1587	1630	1242	1119
1991	1299	1199	1196	1337	1168	1796	1095	1342	1597	1847	1344	1135
1992	1411	1315	1268	1539	1217	2068	1170	1426	1607	2064	1458	1186
1993	1514	1389	1351	1734	1248	2274	1248	1532	1676	2245	1581	1233
1994	1703	1486	1408	1880	1310	2405	1346	1710	1872	2465	1773	1387
1995	1709	1563	1383	1921	1285	2540	1425	1725	1834	2506	1843	1455
1996	1743	1604	1365	1969	1311	2673	1456	1777	1924	2591	1986	1646
1997	1814	1644	1387	2078	1354	2785	1525	1857	1947	2702	2209	1674
1998	1885	1866	1422	2390	1418	2940	1699	2052	2184	2903	2501	1952
1999	2318	2063	1536	2692	1756	3398	1850	2308	2488	3267	2807	2176
2000	2576	2327	1661	3015	2025	3613	1971	2639	2768	3939	3066	2443
2001	2876	2639	1981	3484	2349	4162	2219	2958	3464	4500	3526	2670
2002	3339	3055	2259	3970	2685	4540	2635	3385	3797	5184	3925	3056
2003	3644	3525	2488	4582	3024	5163	2948	3699	3950	5780	4186	3350
2004	4038	3769	2754	5128	3256	5565	3446	4070	4297	6211	4386	3611
2005	4320	4062	3059	5551	3407	5867	3809	4442	4562	6386	4490	3908
Memo item:	Average annual growth rates											
1985-95	4.94	4.55	2.85	5.63	2.74	6.12	4.27	4.68	0.80	6.19	5.88	3.14
1995-05	9.91	10.64	8.24	11.50	10.25	9.37	11.02	10.07	9.52	10.11	9.77	10.94
1985-05	14.81	14.67	11.27	16.91	13.18	14.94	14.71	14.66	10.52	16.13	15.26	13.60

Note:

1.   Nominal wage deflated by provincial CPI.

Source: Compiled from, National Statistical Bureau, *China Statistical Yearbook* and *China Labour Yearbook*.

Table 5: List of Explanatory Variables for Wage Function Estimation

Sex and age
Female dummy
age-15
(age-15)^2/100
Education dummies
College
Senior high school
Junior high school
Primary school
Ownership dummies
State-owned enterprise
Urban collectives
Urban private companies (including partnerships)
Urban one-man enterprises
Foreign companies (including Sino-foreign joint ventures)
Other ownership
Industry dummies
1. Agriculture, forestry, animal husbandry, fishery and water conservation
2. Manufacturing and electricity, gas and water supply
3. Mining and geological survey and prospecting
4. Construction
5. Transportation, communication, postal services and telecommunication
6. Commerce, restaurants & catering, materials supply, marketing, and warehouses
7. Real estate, public utilities, personal and consulting services
8. Medical services, hygiene and social welfare
9. Education, culture, arts and broadcasting
10. Scientific research and technical services
11. Finance and insurance
12. Government, party and social organizations
13. Others
Province/municipality dummies
Beijing
Shanxi
Liaoning
Jiangsu
Anhui
Henan
Hubei
Guangdong
Chongqing
Sichuan
Yunnan
Gansu
Coastal area dummy
Coastal area (Beijing, Jiangsu and Guangdong)
Inland area (other province/municipality)
Migrant worker dummy
Migrant workers (non-city resident workers who temporarily live in cities)
Non-migrant workers

Table 6: Estimated Wage Functions for 2002: Coastal/Inland and Migrant/Non-Migrant Comparison

	Equation 1		Equation 2		Equation 3	
Data set	Non-migrant and migrant workers, 2002		Non-migrant workers, 2002		Migrant workers, 2002	
Dependent variable: ln (wage rate)	Coef.	t-value	Coef.	t-value	Coef.	t-value
Female	−0.208	−18.2	−0.175	−13.18	−0.256	−12.55
Age−15	0.032	12.76	0.033	10.29	0.037	9.09
(Age−15)^2/100	−0.056	−11.07	−0.045	−7.19	−0.089	−10.4
College	0.169	9.9	0.194	11.54	0.101	1.83
Junior middle school	−0.136	−8.28	−0.138	−8.99		
Elementary school	−0.295	−7.93	−0.326	−9.43		
Urban collectives	−0.160	−7.3	−0.206	−9.4	0.136	2.16
Urban private companies (including partnerships)	−0.056	−2.99	−0.111	−5.69	0.308	5.8
Urban one−man enterprises	0.129	6.16	0.129	3.04	0.324	7.76
Foreign companies (including Sino−foreign joint ventures)	0.185	2.92	0.194	2.87	0.316	2.27
Other ownership	0.012	0.72	−0.013	−0.74	0.234	5.27
1. Agriculture, forestry, animal husbandry, fishery and water conservation	0.046	0.7	0.003	0.04	0.261	1.86
3. Mining and geological survey and prospecting	−0.015	−0.36	−0.028	−0.72	0.419	2.07
4. Construction	0.093	3.3	0.001	0.03	0.191	3.48
5. Transportation, communication, postal services and telecommunication	0.112	5.01	0.102	4.62	0.207	3.07
6. Commerce, restaurants & catering, materials supply, marketing, and warehouses	−0.100	−6.1	−0.095	−4.82	−0.086	−2.51
7. Real estate, public utilities, personal and consulting services	−0.128	−7.07	−0.076	−3.52	−0.142	−3.84
8. Medical services, hygiene and social welfare	−0.011	−0.22	0.076	1.44	−0.162	−1.66
9. Education, culture, arts and broadcasting	0.015	0.32	0.094	1.85	−0.053	−0.59
10. Scientific research and technical services	0.114	1.69	0.123	1.74	0.165	1.06
11. Finance and insurance	0.183	4.63	0.197	5.25	0.041	0.22
12. Government, party and social organizations	−0.065	−1.22	0.096	1.52	−0.268	−2.8
13. Others	−0.119	−4.11	−0.012	−0.29	−0.165	−3.48
coast	**0.328**	**21.29**	**0.317**	**22.17**	**0.313**	**13.76**
migrant	**−0.160**	**−7.97**				
coast*migrant	**−0.023**	**−0.9**				
_cons	8.723	256.26	8.619	204.83	8.436	132.54
	Number of obs	9141	Number of obs	5820	Number of obs	3321
	F(26, 9114)	85.65	F(24, 5795)	76.94	F(22, 3298)	31.89
	Prob > F	0	Prob > F	0	Prob > F	0
	R−squared	0.1964	R−squared	0.2416	R−squared	0.1754
	Adj R−squared	0.1941	Adj R−squared	0.2385	Adj R−squared	0.1699
	Root MSE	0.52127	Root MSE	0.48063	Root MSE	0.56228

Source: Yuan and Sato (2007).

Table 7: Result of the Blinder-Oaxaca Decomposition of the Coastal/Inland Wage Gap among Migrant Workers

	Panel A						Panel B			Panel C	
	Migrants in the Coastal Region			Migrants in the Inland Region			Decomposition results for variables (as %)			Summary of decomposition results (as %)	
Variable	Coefficent	Mean	Prediction	Coefficent	Mean	Prediction	Attrib	Endow	Coeff		
Female	−0.291	0.442	−0.129	−0.24	0.424	−0.102	−2.7	−0.4	−2.3	Amount attributable:	−19.5
Age−15	0.027	19.559	0.524	0.038	19.77	0.75	−22.6	−0.8	−21.8	− due to endowments (E):	−1.3
(Age−15)^2/100	−0.059	4.493	−0.266	−0.093	4.703	−0.435	17	1.9	15	− due to coefficients (C):	−18.2
College	0.147	0.039	0.006	0.076	0.032	0.002	0.3	0.1	0.3	Shift coefficient (U):	49.4
Junior high school	0	0	0	0	0	0	0	0	0	Raw differential (R) {E+C+U}:	29.9
Primary school	0	0	0	0	0	0	0	0	0	Adjusted differential (D) {C+U}:	31.2
Urban collectives	0.106	0.067	0.007	0.177	0.027	0.005	0.2	0.7	−0.5		
Urban private companies (including partne	0.167	0.091	0.015	0.375	0.068	0.025	−1	0.9	−1.9	Endowments as % total (E/R):	−4.4
Urban one−man enterprises	0.351	0.532	0.187	0.321	0.628	0.202	−1.5	−3.1	1.6	Discrimination as % total (D/R):	104.4
Foreign companies (including Sino−foreign	0.316	0.013	0.004	0.254	0.003	0.001	0.3	0.2	0.1		
Other ownership	0.23	0.19	0.044	0.235	0.216	0.051	−0.7	−0.6	−0.1	(difference between model constants)	
1. Agriculture, forestry, animal husbandry,	0.503	0.001	0.001	0.273	0.007	0.002	−0.1	−0.1	0	D = portion due to discrimination (C+U)	
3. Mining and geological survey and prospe	0	0	0	0.455	0.003	0.001	−0.1	−0.1	0		
4. Construction	0.294	0.055	0.016	0.168	0.044	0.007	0.9	0.2	0.7	positive number indicates advantage to high gr	
5. Transportation, communication, postal s	0.218	0.028	0.006	0.222	0.026	0.006	0	0	0	negative number indicates advantage to low gr	
6. Commerce, restaurants & catering, mat	−0.127	0.368	−0.047	−0.057	0.51	−0.029	−1.8	0.8	−2.6		
7. Real estate, public utilities, personal an	−0.279	0.236	−0.066	−0.079	0.215	−0.017	−4.9	−0.2	−4.7		
8. Medical services, hygiene and social we	−0.077	0.02	−0.002	−0.255	0.008	−0.002	0.1	−0.3	0.3		
9. Education, culture, arts and broadcastir	−0.094	0.02	−0.002	−0.026	0.012	0	−0.2	0	−0.1		
10. Scientific research and technical servi	0.274	0.01	0.003	−0.093	0.002	0	0.3	−0.1	0.4		
11. Finance and insurance	−0.171	0.006	−0.001	0.244	0.002	0	−0.1	0.1	−0.2		
12. Government, party and social organiza	−0.352	0.023	−0.008	−0.19	0.008	−0.002	−0.7	−0.3	−0.4		
13. Others	−0.316	0.091	−0.029	−0.094	0.072	−0.007	−2.2	−0.2	−2.0		
_cons	**8.882**	1	8.882	**8.389**	1	8.389	Subtotal				
							−19.5	−1.3	−18.2		
Prediction (ln):	9.146			8.847							
Prediction (Yuan):	9379.76			6954.81							

Table 8: Average Wage Level of Male High-School Graduate Workers in Their 20s: Coastal/Inland Comparison, Manufacturing Sector, 2002

(in Chinese Yuan)

	Average	Standard deviation	Median	Sample size
The inland region	8703.3	932.0	7200.0	*36*
The coastal region	12386.7	1697.8	11400.0	*18*

Source: Yuan and Sato (2007).

Table 9: Estimated Wage Functions by Year Including the Coastal Area Dummy

|	Equation 4		Equation 5		Equation 6	
Data set	Non-migrant workers, 1988		Non-migrant workers, 1995		Non-migrant workers, 2002	
Dependent variable: ln (wage rate)	Coef.	t-value	Coef.	t-value	Coef.	t-value
Female	−0.107	−20.33	−0.094	−10.51	−0.175	−13.18
Age−15	0.054	56.45	0.054	27.52	0.033	10.29
(Age−15)^2/100	−0.077	−37.35	−0.076	−18.62	−0.045	−7.19
College	0.077	9.14	0.109	9.59	0.194	11.54
Junior middle school	−0.050	−8.39	−0.096	−8.9	−0.138	−8.99
Elementary school	−0.151	−16.99	−0.222	−10.4	−0.326	−9.43
Urban collectives	−0.687	−7.28	−0.224	−17.41	−0.206	−9.4
Urban private companies (including partnerships)	0.225	5.13	0.219	2.14	−0.111	−5.69
Urban one-man enterprises			0.241	5.77	0.129	3.04
Foreign companies (including Sino-foreign joint ventures)	−0.266	−5.48	0.540	4.05	0.194	2.87
Other ownership			−0.015	−0.21	−0.013	−0.74
1. Agriculture, forestry, animal husbandry, fishery and water conservation	0.047	1.85	0.061	1.79	0.003	0.04
3. Mining and geological survey and prospecting	0.047	3.65	0.092	2.23	−0.028	−0.72
4. Construction	0.043	3.05	−0.025	−0.95	0.001	0.03
5. Transportation, communication, postal services and telecommunication	0.061	5.92	0.090	4.51	0.102	4.62
6. Commerce, restaurants & catering, materials supply, marketing, and warehouses	0.009	1.23	−0.065	−4.91	−0.095	−4.82
7. Real estate, public utilities, personal and consulting services	−0.066	−3.9	−0.078	−3.36	−0.076	−3.52
8. Medical services, hygiene and social welfare	0.046	4.33	0.072	3.45	0.076	1.44
9. Education, culture, arts and broadcasting	0.010	0.95	0.024	1.4	0.094	1.85
10. Scientific research and technical services			0.093	3.23	0.123	1.74
11. Finance and insurance	0.069	3.42	0.237	7.78	0.197	5.25
12. Government, party and social organizations	0.002	0.25	−0.019	−1.28	0.096	1.52
13. Others	−0.143	−4.51	−0.072	−1.29	−0.012	−0.29
coast	**0.222**	**40.07**	**0.391**	**39.64**	**0.317**	**22.17**
_cons	6.701	591.06	7.736	328.05	8.619	204.83
Number of obs		17078		9621		5820
F		522.39		201.3		76.94
	(21, 17056)		(24, 9596)		(24, 5795)	
Prob > F		0		0		0
R-squared		0.3914		0.3349		0.2416
Adj R-squared		0.3907		0.3332		0.2385
Root MSE		0.32645		0.41976		0.48063

Source: Yuan and Sato (2007).

Table 10: Estimated Wage Functions by Year Including the Province/Municipality Dummies

| Data set	Equation 7 Non-migrant workers, 1988		Equation 8 Non-migrant workers, 1995		Equation 9 Non-migrant workers, 2002		Equation 10 Migrant workers, 2002	
Dependent variable: ln (wage rate)	Coef.	t-value	Coef.	t-value	Coef.	t-value	Coef.	t-value
Female	−0.108	−21.61	−0.098	−11.33	−0.178	−13.78	−0.262	−12.88
Age−15	0.052	56.14	0.051	26.58	0.033	10.42	0.036	8.76
(Age−15)^2/100	−0.072	−36.47	−0.070	−17.77	−0.047	−7.58	−0.087	−10.12
College	0.078	9.73	0.107	9.65	0.191	11.65	0.108	1.96
Junior middle school	−0.052	−9.09	−0.092	−8.76	−0.127	−8.42		
Elementary school	−0.164	−19.3	−0.248	−11.9	−0.316	−9.33		
Urban collectives	−0.681	−7.54	−0.221	−17.53	−0.195	−9.07	0.129	2.03
Urban private companies (including partnerships)	0.140	3.33	0.190	1.91	−0.110	−5.71	0.308	5.75
Urban one−man enterprises			0.180	4.42	0.121	2.94	0.316	7.46
Foreign companies (including Sino−foreign joint ventures)	−0.322	−6.95	0.404	3.12	0.168	2.55	0.320	2.3
Other ownership			−0.102	−1.49	−0.028	−1.7	0.227	5.05
1. Agriculture, forestry, animal husbandry, fishery and water conservation	0.019	0.79	0.044	1.31	−0.041	−0.59	0.262	1.87
3. Mining and geological survey and prospecting	0.068	5.4	0.095	2.38	0.007	0.19	0.417	2.05
4. Construction	0.028	2.11	−0.030	−1.19	−0.011	−0.37	0.180	3.24
5. Transportation, communication, postal services and telecommunication	0.047	4.71	0.075	3.86	0.092	4.25	0.189	2.79
6. Commerce, restaurants & catering, materials supply, marketing, and warehouses	−0.004	−0.51	−0.072	−5.6	−0.095	−4.95	−0.095	−2.77
7. Real estate, public utilities, personal and consulting services	−0.076	−4.66	−0.078	−3.45	−0.105	−4.95	−0.148	−3.99
8. Medical services, hygiene and social welfare	0.045	4.39	0.061	3.03	0.066	1.3	−0.151	−1.55
9. Education, culture, arts and broadcasting	0.020	2.01	0.024	1.44	0.059	1.19	−0.027	−0.3
10. Scientific research and technical services			0.121	4.3	0.082	1.19	0.171	1.09
11. Finance and insurance	0.050	2.55	0.215	7.3	0.196	5.35	0.075	0.42
12. Government, party and social organizations	−0.001	−0.14	−0.017	−1.17	0.075	1.22	−0.259	−2.7
13. Others	−0.134	−4.41	−0.053	−0.98	−0.048	−1.2	−0.148	−3.11
Beijing	**0.031**	**2.4**	**0.014**	**0.7**	**0.378**	**12.93**	**0.055**	**1.05**
Shanxi	−0.226	−22.83	−0.342	−18.35	−0.157	−5.36	−0.280	−5.25
Liaoning	−0.061	−6.13	−0.262	−14.65	−0.032	−1.26	−0.205	−4.69
Anhui	−0.140	−13.77	−0.317	−15.97	−0.118	−4.03	−0.292	−6.67
Henan	−0.240	−25.02	−0.394	−20.44	−0.229	−8.33	−0.314	−7.12
Hubei	−0.116	−11.88	−0.221	−12.17	−0.074	−2.69	−0.207	−4.55
Guangdong	**0.242**	**24.85**	**0.342**	**17.61**	**0.327**	**11.79**	**0.111**	**2.57**
Chongqing					−0.011	−0.31	−0.118	−2.3
Sichuan			−0.240	−13.85	−0.132	−4.78	−0.240	−5.22
Yunnan	0.019	1.88	−0.182	−9.9	−0.018	−0.61	−0.248	−5.18
Gansu	−0.063	−5.47	−0.442	−19.78	−0.265	−8.04	−0.372	−7.6
_cons	6.857	562.39	8.067	315.74	8.754	198.03	8.717	124.22
Number of obs		17078		9621		5820		3321
F	F(29, 17048)	468.95	F(33, 9587)	174.11	F(34, 5785)	67.35	F(32, 3288)	23.3
Prob > F		0		0		0		0
R-squared		0.4437		0.3747		0.2836		0.1849
Adj R-squared		0.4428		0.3726		0.2794		0.1769
Root MSE		0.31217		0.40718		0.46755		0.5599

Source: Yuan and Sato (2007).

Figure 1: Registered Unemployment Rate in Urban Areas
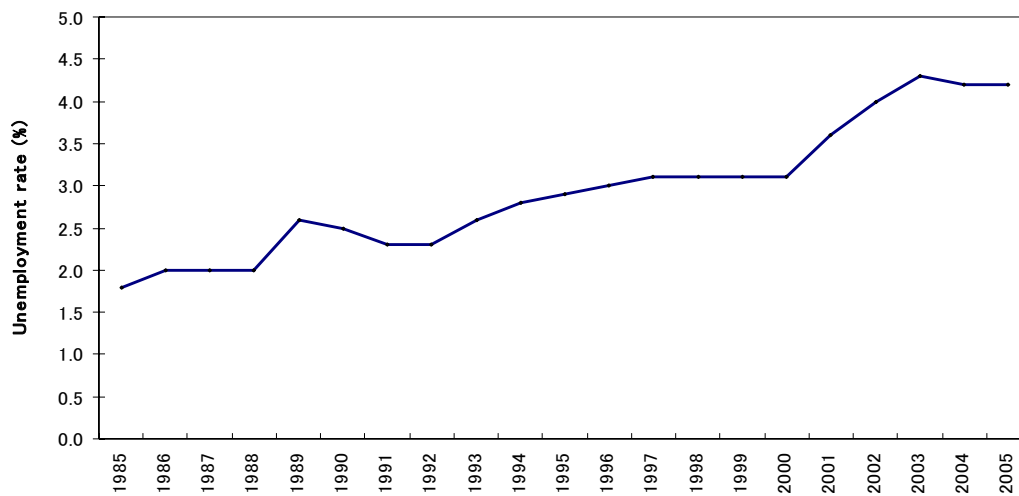
Source: National Bureau of Statistics: *China Labour Yearbook*

**Figure 2: Growth of Real Urban Wages[1] by Ownership of Firms, 1986-20005
(Three-year moving averages, centered at the current year) [2]**
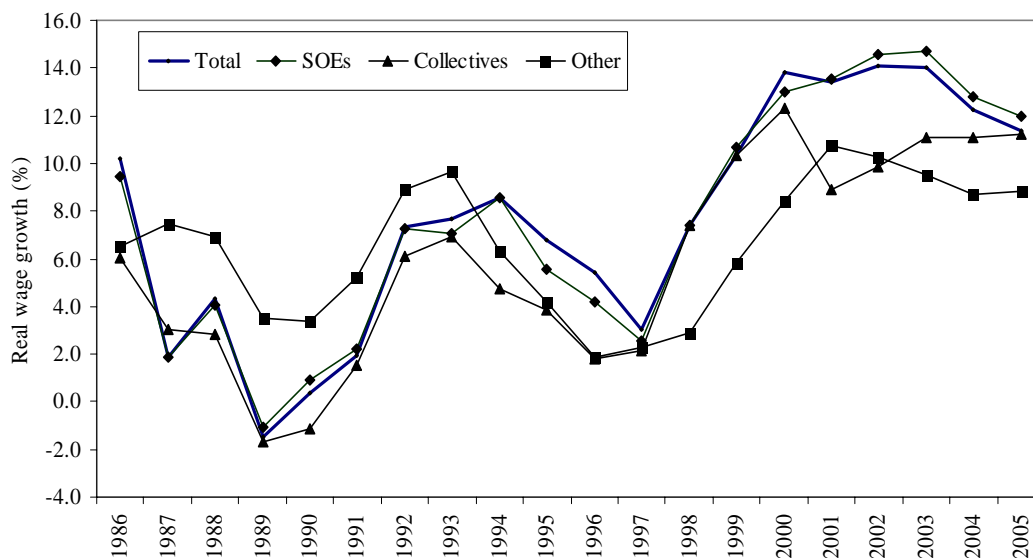
Notes:
1.   Nominal wage deleted by CPI (1990 = 100)
2.   Average annual growth rates:

	Total	SOEs	Collective	Other (private)
1985-95	1.02	0.89	0.55	0.6
1995-05	11.5	10.7	8.3	7.4
1985-05	8.0	7.3	5.2	6.1

Source: Based on data compiled from National Bureau of Statistics, *China Labour Yearbook* and *China Statistical Yearbook*.

**Figure 3: Real Wages[1] in Sichuan and Guangdong Provinces, 1985-2005 (yuan, at 1985 prices)[2]**
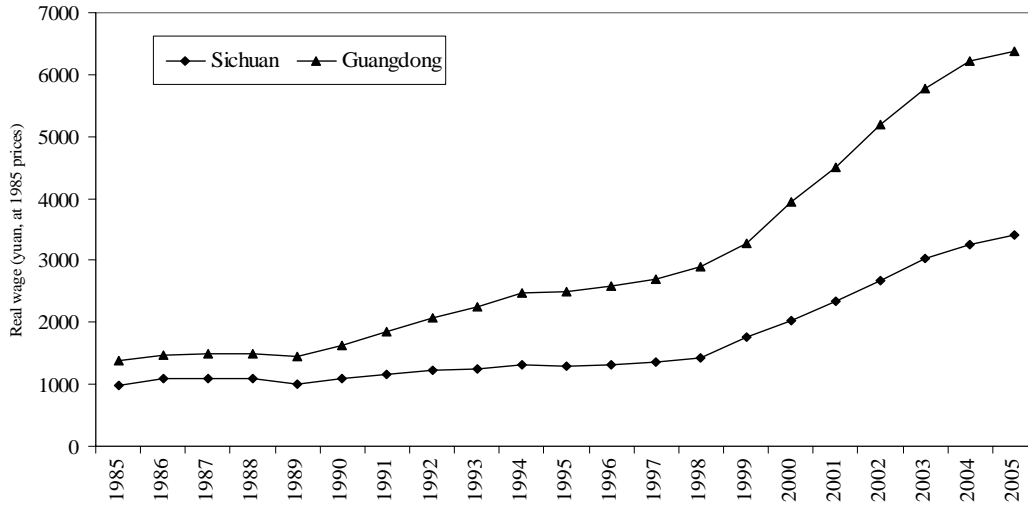
Notes:

1 Nominal wage (yuan) deflated by the regional CPI (1990 = 100).

2. Average annual growth rates

	Sichuan	Guangdong
1985-95	2.7	6.2
1995-05	10.3	10.1
1985-05	13.2	16.1

Source: Based on data compiled from China Statistical Yearbook and China Labour Yearbook.

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Figure 4: Real Manual Wages[1] in Total Urban Firms, Urban Private Firms and TVEs, 1987-2002 (Yuan, at 1990 prices)[2]
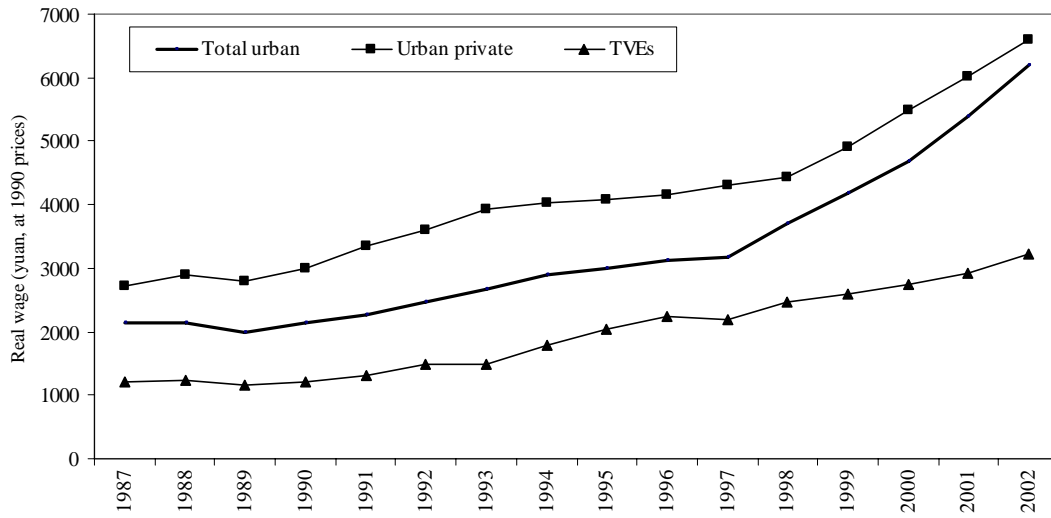
Notes:

1 Nominal wage (yuan) deflated by the regional CPI (1990 = 100).

2. Average annual growth rates

	Total urban	Urban private	TVEs
1987-95	4.5	5.3	7.0
1995-02	11.1	7.2	6.2
1987-02	7.6	6.2	5.8

Source: Based on data compiled from National Bureau of Statistics, *China Labour Yearbook, China Statistical Yearbook*, *Town and Village Enterprise Yearbook*.

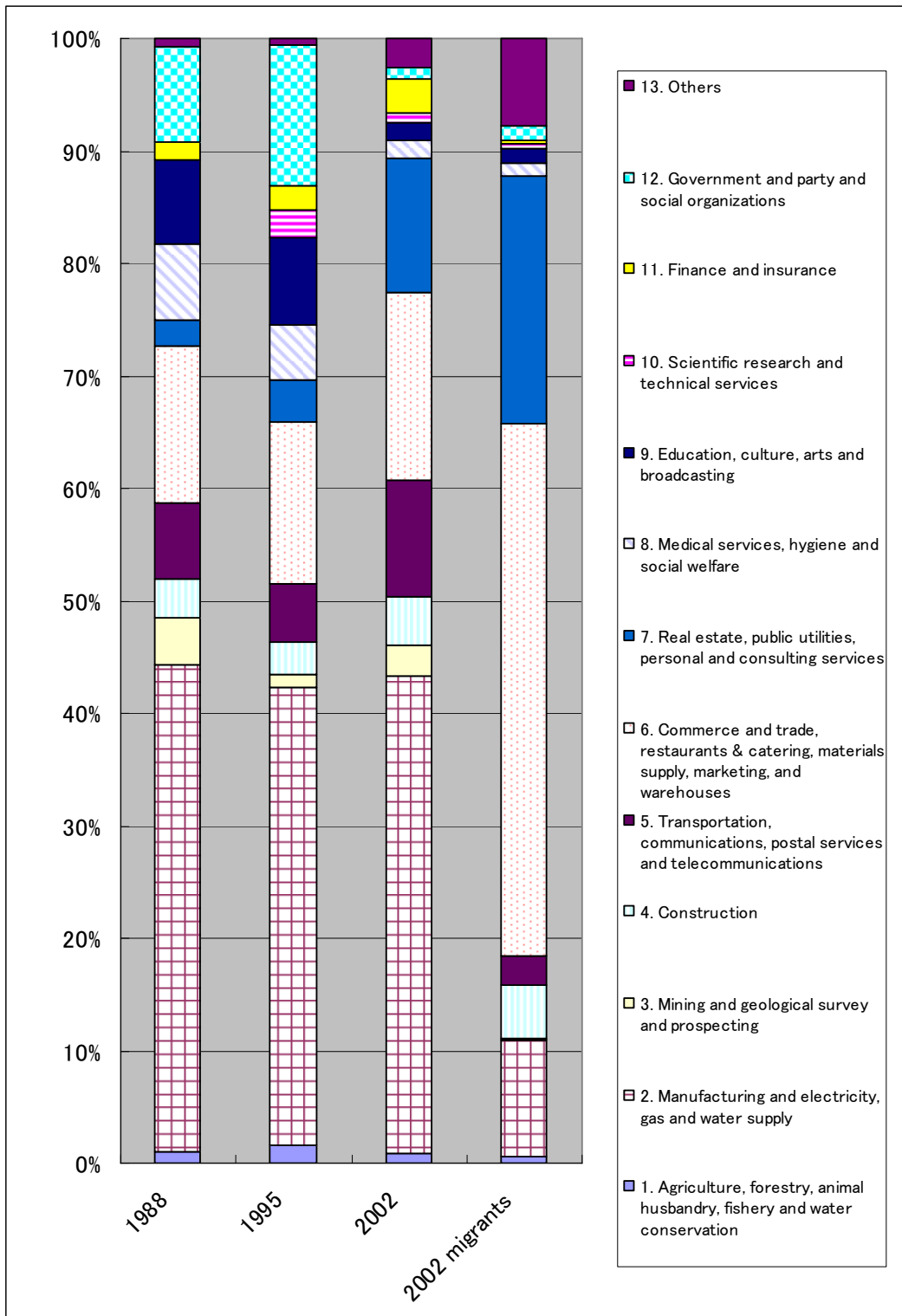**Figure 5: Wage Share in Industrial Valued Added by Ownership Category, 1995-2006**
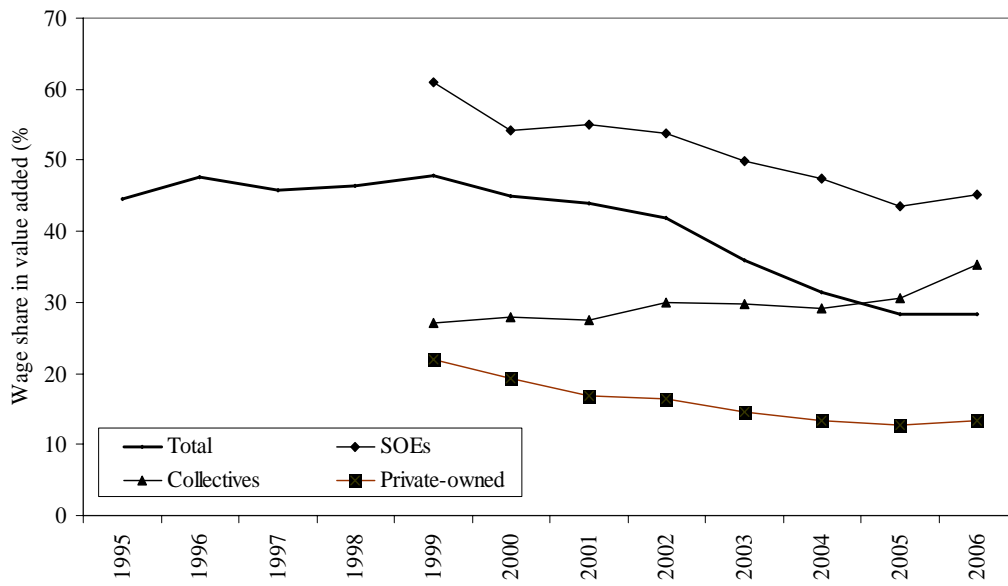
Source: Based on data compiled from *CEIS Database*.

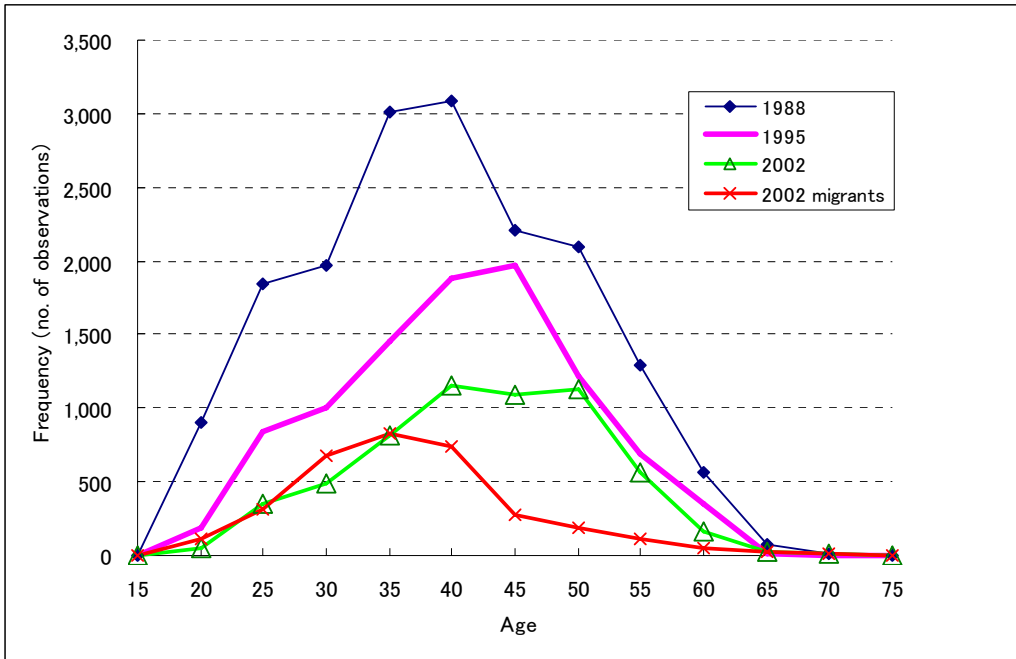**Figure 6 Regional Distribution of Observations by Year**
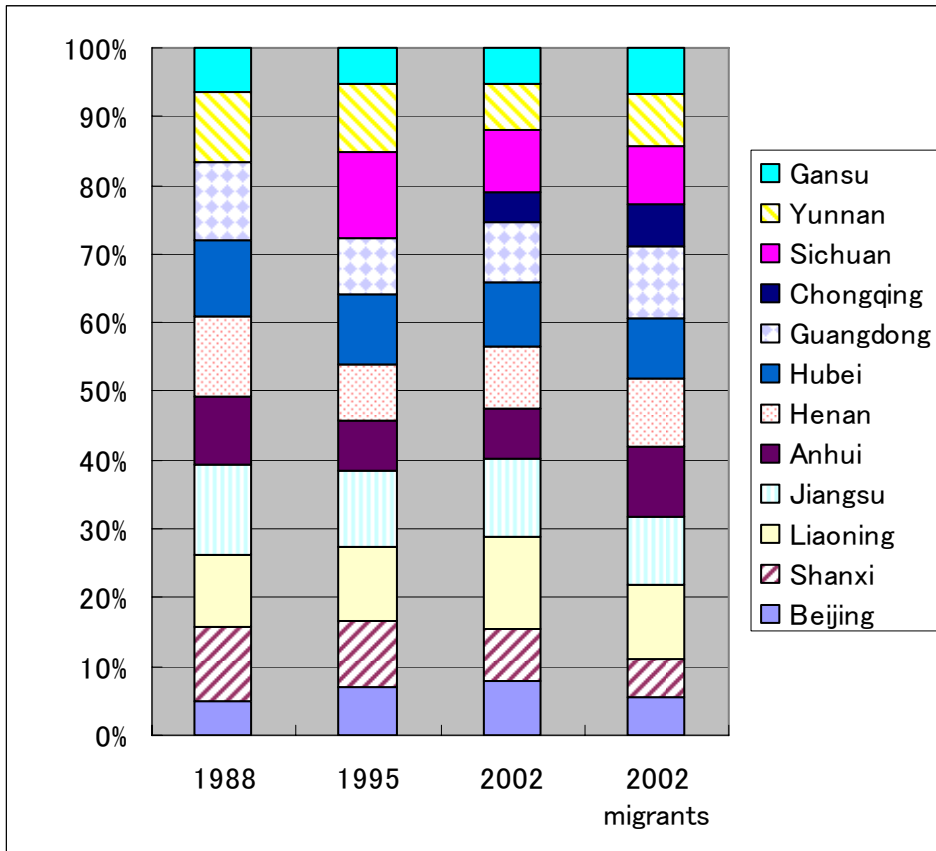
Source: Yuan and Sato (2007).

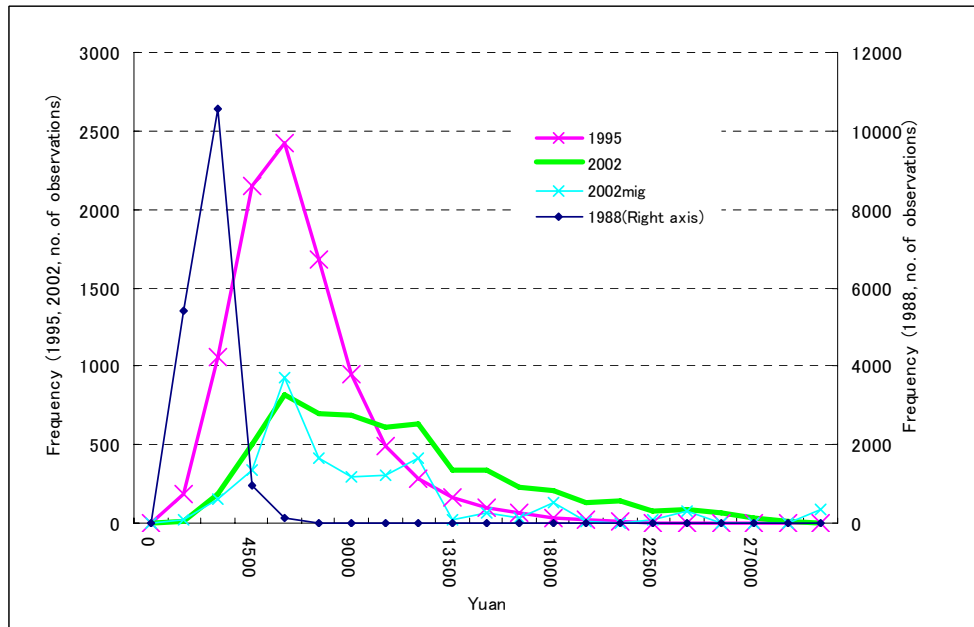**Figure 7: Distribution of Observations by Industry and Year**

Source: Yuan and Sato (2007).

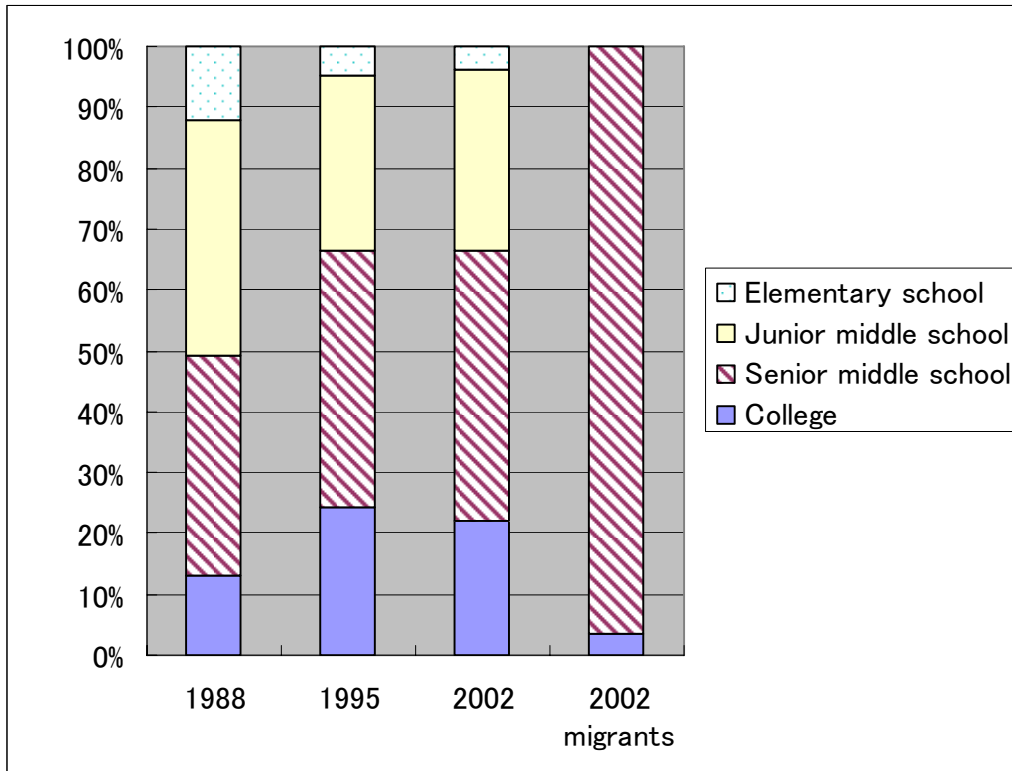**Figure 8: Frequency of Observations by Age Group**

Source: Yuan and Sato (2007).

Figure 9: Frequency of Observations by Wage Rate Level

Source: Yuan and Sato (2007).

Figure 10: Distribution by Education Level and Year

Source: Yuan and Sato (2007).

Figure 11: Consumer Price Levels by Province/Municipality in 2002 (Jiangsu=1)