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South China's labor shortage ~ will the current worker shortage escalate?

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South China's labor shortage

~ will the current worker shortage escalate?

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Summary

1. From around 2002, factories in South China have been facing difficulties in securing sufficient workers. The shortage has rapidly intensified since the spring of 2004. Today, the labor shortage is evidenced in East China and certain inland regions. The shortage of labor is comprised mainly of young female workers. The shortage is felt most acutely among apparel–related manufacturers. The impact of the labor shortage is also reaching manufacturers of electronic parts. Tertiary industries such as eating and drinking establishments (restaurants) are also suffering a labor shortage, given the competition for young female workers with apparel factories. Certain industries traditionally perceived as oriented toward male workers such as metal processing are also facing a shortage of labor.
2. The shortage of labor is attributed very often to the low level of wages and poor working conditions among certain factories in South China. However, a more fundamental and plausible cause is the creation of more attractive job opportunities in other work places as a result of tight labor market conditions which has resulted in the emergence of a labor shortage first in work places with low wages and poor working conditions.
3. The tightening of the labor market is often attributed to the four following factors: (1) the decline of the young female population, (2) the sharp rise of job offers among manufacturers, (3) the shift of workers toward service sectors, and (4) the rising popularity of the agriculture as a job opportunity.
4. Firstly, the decline of the young female population is evidenced by statistics and is leading to the aging of the work force. Undoubtedly, this is one of the underlying reasons for the shortage of young female workers. The decline of the young female population stems primarily from demographic policies to curb population growth.
5. Despite the rise in popularity of the agricultural sector as a job

opportunity in 2004 due to policy measures to cut agricultural taxes, it is unlikely that this is the main reason behind the worker shortage. Furthermore, the hypothesis that the shortage of factory workers in the manufacturing sector stems from the rapid shift of the work force toward service sectors is also tenuous. A more plausible analysis is that the increase of job offers in the manufacturing sector itself has led to the shortage of factory workers.

6. One of the major factors behind the increase of job offers in the manufacturing sector is the increase of job offers of export–oriented enterprises such as apparel makers as a result of China's accession to the World Trade Organization (WTO). We also believe that the pause in restructuring efforts by state–owned enterprises, leading to decline in number of workers who are laid off, also has an impact upon the demand and supply of workers.
7. Since the decline of the youth age population will come to a temporary pause, the likelihood of a sharp deterioration of the labor shortage is slim for the time being. Even if China should lose its attractiveness as a low–wage export processing site, such an event would only occur sometime around 2010 when it will become more difficult to secure young workers because of the declining birthrate.

1. Introduction

Since early spring of 2004, there has been a sharp rise of media coverage on the labor shortage in the Guangdong and Fujian provinces. The shortage is comprised of general workers and technical workers. Even though the shortage of technical workers is not a rare phenomenon in developing countries, not many forecasted a labor shortage of general workers having no particular technical skills in China given its huge population. In this report, we shall

focus upon the shortage of general workers (referred to below as "workers"). The labor shortage in South China is mainly young female workers. For these workers, factories in South China thus far depended heavily upon migrant workers from central and western China.

Since the impact upon Japanese companies is fairly benign at the moment, media reports of a worker shortage are taken with some skepticism in Japan. However, there is a growing awareness of the labor shortage among enterprises. According to a survey of Japanese enterprises conducted by the Japan Bank for International Cooperation, the percentage of responses that "the medium–term challenge faced by China is the rise of labor costs", has been rising for three years in a row, reaching 32.4% in 2004 and surpassing the percentage of responses that China's task is to "secure management level personnel" (28.4%). Furthermore, of the reasons citing China as a promising site for business expansion in the medium–term perspective, the percentage of the response indicating "inexpensive labor" fell sharply from 74.9% in 2003 to 66.1% in 2004.

The future question is whether the expansion of the labor shortage will lead to the ebb of China's attractiveness as a low–cost processing and assembly site. On the basis of this fundamental perspective, we shall examine how far the worker shortage will intensify.

In this report, the term "South China" refers to the provinces of Guangdong and Fujian and "East China" refers to the city of Shanghai and the provinces of Zejiang and Jiangsu.

2. An overview of the worker shortage problem

The following section provides an overview of the worker shortage problem in terms of gender and geographic trends on the basis of data on job offers.

(1) The emergence of the worker shortage

The shortage of female migrant workers in the manufacturing sector mainly in South China started to be reported from around 2002. Furthermore, the worker shortage escalated sharply in 2004. According to a government report on the shortage of migrant workers by the Ministry of Labor and Social Security (hereinafter the *MLSS Report*) (Note 1), labor shortages are reported in the cities of Shenzhen and Dongguan of Guangdong province, Quanzhou and Putian of Fujian province and the city of Wenzhou in Zhejiang province. The shortage amounts to a total of 2 million workers. In these three provinces, worker shortages are also evidenced in other cities.

More recently, shortages of workers are being reported not only in major Eastern areas such as the provinces of Shandong and Jiangsu and the cities of Shanghai and Beijing but also in local cities such as Chongqing, Harbin (Heilongjiang province) and Lanshan (Hunan province).

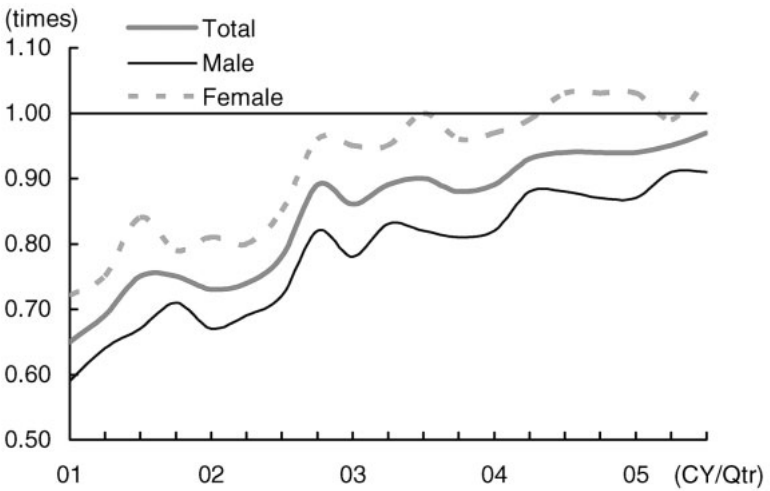
(2) Trends in the ratio of job offers to applicants

Can we discern a shortage of young female workers in the manufacturing sector from statistical data? In this section, we shall examine the labor force trends in urban areas on the basis of the *Analysis on Labor Supply and Demand in Selected Cities* (referred to below as the "*Analysis*") of the Observation Center for Information Network of China Labor Market.

The job offers–to–applicants ratio (no. of job offers ÷ no. of job applicants), which stood at 0.65 in the Jan–Mar quarter of 2001, has

climbed to 0.97 in the Jul–Sep quarter of 2005 (**Chart 1**). In particular, urban areas are facing an acute shortage of labor since mid–2002. There is a severe shortage of female workers, with the job offers–to–applicants ratio hovering above 1. The *Analysis* calculates the job offers–to–applicants ratio by dividing job offers with "no requirements" regarding gender according to the ratio of male applicants to female applicants and adding the resulting figure to job offers for male and female workers (Note 2). Adjustments are also made in a similar manner for job offers–to–applicants ratio by other criteria such as age.

Chart 1: The job offers–to–applicants ratio



Source: Observation Center for Information Network of China Labor Market, *Analysis on Labor Supply and Demand in Selected Cities.*

Although this paper shall not go into further detail, the *Analysis* reveals a very high job offers–to–applicants ratio for workers in the following groups: (1) workers within the age brackets of 16~24 and 25~34, (2) workers in the commercial services sector and workers with skills to operate transportation equipment, and (3) workers with

academic backgrounds up to junior high school level. The foregoing provides us with reasons to believe that there is an acute shortage of female workers. On the other hand, employment conditions have not improved much for old male workers despite China's spectacular economic growth in recent years. While media reports on China's worker shortage as well as adverse employment conditions may be a source of confusion, the conditions are more easily understood when considering gender and age.

(3) A closer look at the urban labor shortage in terms of geographic area and type of jobs

In this section, we shall examine the labor shortage (by type of jobs) in South China and other parts of the country.

a. South China

According to the aforementioned MLSS Report on the shortage of migrant workers, the shortage of workers is "concentrated in sectors such as shoe making, toy manufacturing, electronic parts assembly, clothing processing and plastic products processing". As mentioned in the MLSS Report that 85% of workers in enterprises in the electronics industry are young female workers, the demand for labor in the foregoing sectors is skewed sharply toward young women.

We shall first examine the actual labor market conditions in Guangdong province. As for labor market supply and demand trends, the top three types of jobs short of job applicants and job offers are disclosed as annual data (Note 3) (**Chart 2**). Sewing machine workers, ranking second place in terms of jobs short of applicants, presumably are comprised mostly of demand for young female workers. The demand for restaurant workers, ranking at the top of the chart, is also presumed to have a strong preference toward young women.

Chart 2: Top 3 jobs short of applicants and top 3 jobs short of job offers in Guangdong province (2004)

(10 thousand persons)

Jobs short of applicants	No. insufficient	Jobs short of job offers	No. insufficient
Restaurant workers	6.69	Accounting staff	2.16
Sewing machine workers	5.71	Automobile drivers	1.85
Machine/electrical appliance operators	4.62	Secretaries/PC operators	1.63

Source: Guangdong Bureau of Labor and Social Security, *Analysis on Supply and Demand of Occupations in Guangdong Labor Market in 2004.*

Even though quarterly data show wider variations depending upon the timing of release, they provide more detailed data on labor market supply and demand trends (by type of jobs) (**Chart 3**). According to such data, a worker shortage is emerging in female–dominated sectors such as apparel–related and electronic parts industries. There is also a severe shortage of workers to engage in services such as restaurants, shop workers and cashiers, given the competition for young female workers with the manufacturing sector. A shortage is also evident with respect to out–of–store sales staff and display sales staff without a clear male–female ratio.

Chart 3: Top 10 jobs short of applicants in Guangdong province (Jul–Sep 2005)

	No. of job offers	No. of applicants	No. insufficient	Job offers-to-applicants ratio
Cutting/sewing workers	28,952	6,312	22,640	4.59
Manual laborers	40,134	20,345	19,789	1.97
Restaurant workers/cooks	25,913	7,563	18,350	3.43
Insurance service workers	27,863	12,567	15,296	2.22
Out-of-store sales staff/ display sales staff	9,652	2,636	7,016	3.66
Shop clerks/cashiers	8,923	3,041	5,882	2.93
Cold processing mechanicians	6,369	2,023	4,346	3.15
Electronic parts makers	7,678	3,516	4,162	2.18
Lathe workers	8,536	4,542	3,994	1.88
Child care/domestic service providers	4,064	2,017	2,047	2.01

Source: Guangdong Bureau of Labor and Social Security, *Analysis on Supply and Demand of Occupations in Guangdong Labor Market in the Jul-Sep Quarter of 2005.*

However, it should be noted that shortages of male workers are emerging in certain male–dominated sectors such as metal processing (cold processing mechanicians and lathe workers). The recent spate of factories by automobile–related manufacturers in the Guangdong area may be serving as one of the factors behind the phenomenon. There is also a shortage of manual workers.

An overview of the labor shortage in terms of the employer (type of enterprise) reveals a severe shortage of labor among foreign–owned enterprises (including enterprises owned by entrepreneurs from Hong Kong, Macau and Taiwan) and private–owned enterprises (individual–owned enterprises with at least eight employees) that are making rapid advances. The majority of these enterprises are facing a shortage of labor (**Chart 4**). Both types of enterprises are most likely competing to secure workers.

Chart 4: Sample survey regarding the worker shortage (Guangdong province)

	No. of samples	2004		2005	
		No. of enterprises short of workers	Ratio (%)	No. of enterprises planning to hire workers	Ratio (%)
State-owed enterprises	105	24	22.9	44	41.9
Collective enterprises	21	3	14.3	8	38.1
Limited companies	147	59	40.1	81	55.1
Joint stock companies	52	11	21.2	27	51.9
Private enterprises	38	21	55.3	25	65.8
Foreign enterprises	140	72	51.4	102	72.9

Note: "Foreign enterprises" include enterprises owned by entrepreneurs from Hong Kong and Taiwan.
Source: Guangdong Provincial Bureau of Statistics, *Analysis on Demand for Labor among the Companies in Pearl River Delta in the Spring of 2005.*

Note, however, that there is a rather surprising lack of indications by Japanese enterprises – in particular major enterprises – having factories in Guangdong province that they are facing a worker shortage. At most, reports of labor shortages cite that "we are not facing a shortage of workers at present, but are experiencing some difficulty in gathering workers regardless of gender and a deterioration in quality of workers" (cited by a metal parts maker in Guangdong). Those foreign–owned enterprises facing a worker shortage are said to be Taiwanese and Hong Kong–based enterprises offering low wages. As we shall elaborate later on in this report, conditions in East China are also very similar, given a lack of anecdotes on labor shortages cited by Japanese enterprises. However, even in cases of Japanese enterprises, labor–intensive small enterprises with relatively low wages are often facing a shortage of workers.

We shall turn next to Fujian province, also located in South China and facing a serious shortage of workers. Of the top 10 jobs with a shortage of applicants, only six are related directly to the manufacturing sector (**Chart 5**). However, five of the job types –

sewing workers, electronic parts makers, textile makers & dye workers, shoemakers & hatmakers, and plastic product processors – are closely related to the aforementioned sectors with a concentrated shortage of workers, thus suggesting a preference for young female workers. In particular, the shortage of job applicants for sewing workers is as high as 140 thousand workers, pushing the job offers–to–applicants ratio to 3.1. Recent data releases for the Jul–Sep quarter of 2005 show that the labor shortage in apparel–related industries has not been mitigated yet. Services industries such as hotels, which compete with factories for young female workers, are also facing a labor shortage. Furthermore, the area also faces a shortage of manual workers.

Chart 5: Top 10 jobs short of applicants in Fujian province (2004)

	No. of job offers	No. of applicants	No. insufficient	Job offers-to-applicants ratio
Cutting/sewing workers	214,023	69,046	144,977	3.10
Artisans and craftsmen	64,223	19,016	45,207	3.38
Electronic parts makers	73,802	31,054	42,748	2.38
Textile makers/dye workers	56,878	21,630	35,248	2.63
Salesmen	73,220	38,609	34,611	1.90
Manual laborers	85,191	50,698	34,493	1.68
Shoemakers & hatmakers	76,742	51,106	25,636	1.50
Hotel service workers	39,458	16,363	23,095	2.41
Guest room workers	21,933	11,494	10,439	1.91
Plastic product processors	7,059	3,341	3,718	2.11

Source: Labor and Employment Center of Fujian Province, *Supply and Demand Status of Occupations in Entire Provincial Labor Market in 2004.*

b. Areas other than South China

According to data releases by municipal government labor authorities, even though there may be differences in degree of seriousness, areas other than South China also face a shortage of apparel–related workers. In East China, Hangzhou (Zhejiang province) ranked second place in terms of the shortage of job

applicants for sewing workers in the Jul–Sep quarter of 2005. The job offers–to–applicants surpassed 10, providing a strong indication of how unpopular the job is. A shortage of apparel–related workers is evident even in Shanghai, where the labor shortage is believed to be relatively benign. Turning next to local cities, worker shortages in the apparel–related industries are reported in a wide area including Chongqing, Wuhan (Hubei province) and Lanshan (Hunan province).

Furthermore, a common characteristic of South China is the shortage of workers to fill the following types of jobs: (1) jobs in restaurants, hotels and retailers which compete for young female workers with the manufacturing sector, (2) metal processing–related jobs, and (3) certain jobs requiring heavy labor (such as cleaning jobs in Hangzhou).

c. Summary

Given its vast land area and huge population, labor market conditions for different job types vary greatly according to geographic area in China. However, the shortage of apparel–related workers is a phenomenon common to all regions. The apparel–related industries' serious worker shortage stems from its labor–intensive nature and strong preference for young female workers. In South China, a shortage of workers is also evident among electronic parts makers, given its strong preference for young female workers as in the case of apparel–related industries.

Sectors such as restaurants, hotels and retailers, which likely compete with factories for young female workers, face an excess of job offers across a wide geographic area. Although these sectors do not attract much attention abroad due to the large proportion of individual–owned enterprises and establishments and the relatively small proportion of foreign–owned enterprises, they also face dire conditions as in the case of apparel factories in that they face a shortage of unskilled workers.

As for anecdotal evidence that it has become increasingly difficult to hire male workers, there is an excess of job offers across a wide

geographic area with respect to jobs related to metal processing. Moreover, despite some disparity in terms of geographic area, jobs requiring heavy labor such as manual and cleaning jobs are having difficulty in attracting applicants.

3. Unraveling the underlying causes of the worker shortage

What are the underlying causes of the worker shortage? Numerous reasons are cited as the causes (**Chart 6**). While all the factors are related to the worker shortage, the debate is somewhat confusing. In the following section, we shall attempt to unravel the debate.

Chart 6: Plausible causes of the worker shortage

① Low wages and adverse work conditions of enterprises (for example in South China)
② Sharp rise of demand for labor in the manufacturing sector
③ The economic development model is reaching a turning point
④ Rise of job offers in the services sector／rising preference among workers for jobs in services
⑤ The spread of mobile telephones is facilitating the exchange of information among workers
⑥ The decline of the youth-age population due to the "One Child Policy"
⑦ The increasing popularity of agriculture given the rise of incomes

Sources: ①②③ based upon the *MLSS Report*
④ based upon the *Christian Science Monitor* (September 30, 2004)
⑤ based upon interviews in Guangzhou
⑥ based upon Shao [2004]
⑦ based upon interviews in Guangzhou

(1) Assessing the "low wage & adverse work conditions" hypothesis

An oft–cited cause of the worker shortage in various media and reports is "unattractive wages and adverse work conditions" (**Chart**

6 ①). It is widespread knowledge that wage levels are extremely low and work conditions are abysmal in certain enterprises. The emergence of a worker shortage in enterprises with such adverse work conditions is not a great mystery in itself.

However, the hypothesis that "low wages & adverse work conditions" comprises the main cause of the worker shortage does not provide a clear explanation on why it was relatively easy to hire workers in the past and why it has become difficult to do so in recent years. Even if certain factories in South China were indeed a provider of "low wages and adverse work conditions", it would not be possible for workers to shift elsewhere and hence would not result in a worker shortage unless other job opportunities offering more attractive work conditions were created. In other words, the creation of new job opportunities with attractive work conditions is the direct cause of the worker shortage and that the aforementioned tightening of the labor market (**Chart 1**) already existed in the background. As a result, a worker shortage is emerging in workplaces with "low wages and adverse work conditions".

One way to provide an answer to why it has become difficult to attract workers in recent years is to focus upon the spread of information. In China with a vast land area, accurate employment information does not necessary reach all corners of the country at once. Even though it was not known that labor conditions in factories in South China were bad and that there were better workplaces elsewhere, such information spread among workers along with the passage of time. It is true to some extent that workers migrated to other workplaces as a result of the spread of information.

However, barring the premise of a labor crunch, workers would not have other job options to migrate to even if information were to spread to other parts of the country. Even if the spread of information served as a factor in the initial stage of the worker shortage, it would not have led to a serious worker shortage in South China unless there were other attractive job opportunities elsewhere amid the labor crunch.

Take for example the case of East China which is a likely

destination for workers. If there had been a serious worker shortage due mainly to the shortage of information despite attractive labor conditions such as wages, the dissemination of information has the potential to play a major role. In this case, however, a serious worker shortage should have occurred in East China ahead of South China and the escalation of the worker shortage in South China should have led to a simultaneous alleviation of the shortage in East China. What has occurred is just the opposite. A serious worker shortage occurred first in South China, followed by reports of worker shortages in certain parts of East China such as Zhejiang province.

Summarizing the foregoing, even though the possibility that the dissemination of information contributed in some way in the formation process of the worker shortage may not be ruled out, a more fundamental cause of the worker shortage is the severe tightening of labor market conditions.

(2) Assessing the "mobile telephone" hypothesis

Another hypothesis on the cause of the worker shortage focuses upon the spread of mobile telephones (**Chart 6** ⑤). For workers who had been virtually shut off from the outside world as a result of living in dormitories and working around the clock, the advent of the mobile telephone brings about the instantaneous spread of employment information, triggering them to migrate to more job openings with more favorable labor conditions, according to this hypothesis. The dissemination rate of mobile telephones has climbed rapidly, reaching approximately 30% and may even be higher among migrant workers who comprise a younger segment of the population. According to research by the city of Dalian, 55% of migrant workers use mobile telephones as means of telecommunications.

Even though it is unlikely that the dissemination of information is the main cause of the worker shortage, as explained above, it is true that mobile telephones speed up the information dissemination process. Thus, despite the unmistakable fact that mobile telephones speeded up the shift of workers and the adjustment of wages, we do

not think that it is the main cause of the worker shortage.

(3) Assessing the "economic development model" hypothesis

The MLSS Report mentioned earlier says that "changes in the economic development model" is the fundamental cause of the worker shortage (**Chart 6** ③). "Changes in the economic development model" most likely refers to the limits of a labor–intensive industry using low–cost labor.

Generally speaking, in the event cheap labor is no longer available, corporate enterprises attempt to supplement the worker shortage by spending more on mechanization (shift to a capital–intensive industry). Therefore, the changes in the economic development model is not the cause but the result of the worker shortage. The cause and effect is reversed in this hypothesis. Even though a enterprise may increase their capital investment in a bid to promote mechanization even if it does not have problems in finding enough workers, the result would not be a shortage of workers but an excess of workers.

(4) Conclusion

We have examined some of the factors which are frequently cited as causes of the worker shortage. An excessive emphasis upon factors which are not directly related to the supply and demand of workers results in confusion to understand the large picture.

The debate on the cause of the worker shortage mainly in factories can be simplified in the following manner. Either the supply of labor (mainly young female workers) is slowing down (corresponding to **Chart 6** ⑥), or workers are being attracted to jobs in services (the tertiary industry) or agriculture (corresponding to **Chart 6** ④⑦), or the demand for labor in the manufacturing sector is accelerating to excessive levels (**Chart 6** ②).

In the following section, we shall examine the young female labor force from the perspective of demographic trends. Furthermore in the next section, we shall examine the trends in number of workers in different types of jobs.

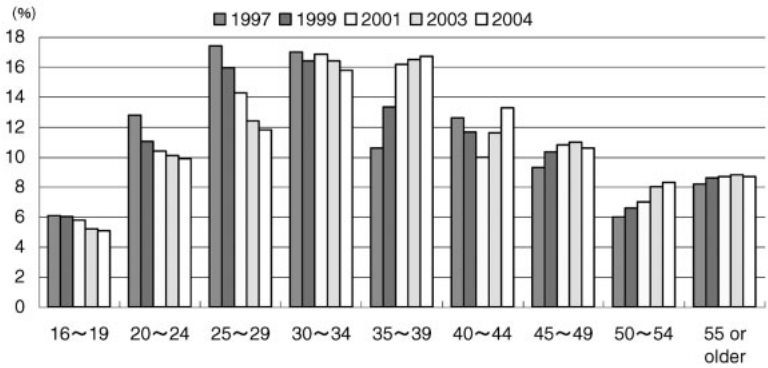
4. Demographic trends and the young female labor force

From the perspective of labor supply, a frequently cited cause of the worker shortage is the impact of the so–called "One Child Policy". Even though it has become extremely difficult to hire young female workers in South China, local interviews reveal that the same is also true with respect to young male workers. These conditions are a strong indication of the impact of the One Child Policy. While the nature and contents of the One Child Policy differ depending upon the time period discussed, the government started to implement the policy in 1979. Since a child born in 1979 would have turned 25 in 2004, it coincides chronologically with the escalation of the worker shortage of young female workers. We shall examine this issue in more detail below.

(1) Age structure of female workers and demographic trends

Chart 7, setting forth time series data on the age structure of female workers, indicates a decline of workers in the age bracket up to and including the 20s. Meanwhile, with the exception of certain groups, the percentage is rising in age groups above the mid–30s, clearly indicating that workers are growing older.

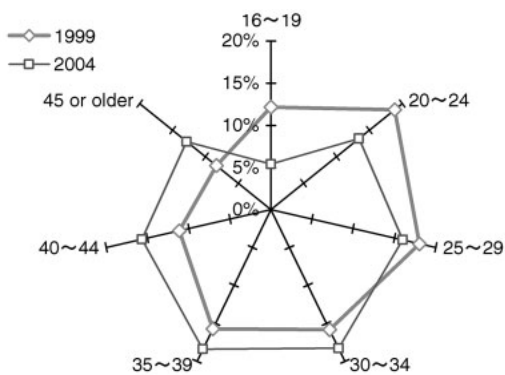
Chart 7: Age structure of female workers



Source: China, Ministry of Labor and Social Security, *Chinese Labor Statistics Annual.*

It is not only the workers but also the unemployed – another source of labor – that are growing older. Even though data on unemployment is limited to urban areas due to statistical limitations, time series data reveals a sharper decline of the percentage of female workers among the unemployed in comparison to workers (**Chart 8**). The foregoing illustrates that labor market conditions regarding young female workers is growing tighter.

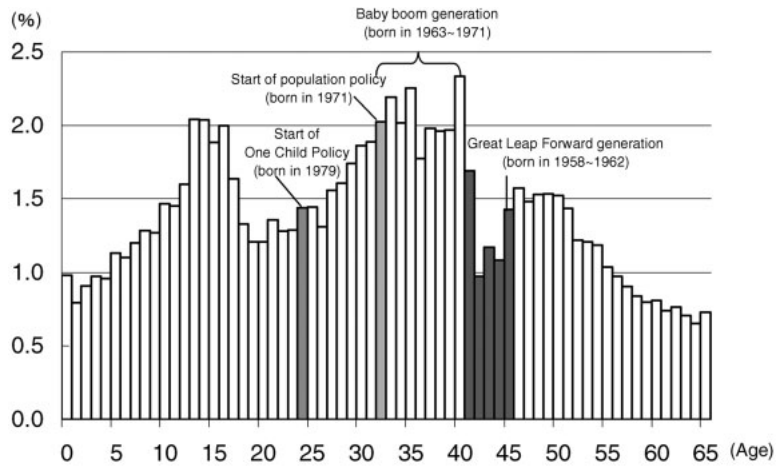
Chart 8: Age structure of female employment in urban areas



Source: China, Ministry of Labor and Social Security, *Chinese Labor Statistics Annual.*

The constituent ratio of the female population in 2003 shows that the population bracket between the late teens to the mid–20s is smaller than the population bracket in the 30s (**Chart 9**). It is clear that these demographic shifts are the major cause of the aging work force.

Chart 9: Age structure of female population (2003)



Source: Ministry of Labor and Social Security of China, *Chinese Labor Statistics Annual*.

(2) Background factors to the aging population

Is the One Child Policy a cause of the aging work force (including both workers and the unemployed)? Looking at the total fertility rate (TFR, the number of children a woman gives birth to during her lifetime), the TFR fell sharply during the Great Leap Forward (1958~1962) but took a rebound due to a reaction as well as Mao Zedong's Marxist–based pronatalism that "the more (people) the better". Excluding the sharp drop mentioned above, the TFR has remained stable around six children up to the 1970s.

The TFR started to follow a downward path from 1971 when the government under the leadership of Premier Chou En Lai started to advocate birth planning. From 1979 when the One Child Policy was

implemented, China's population followed a gradual decline with the exception of minor fluctuations.

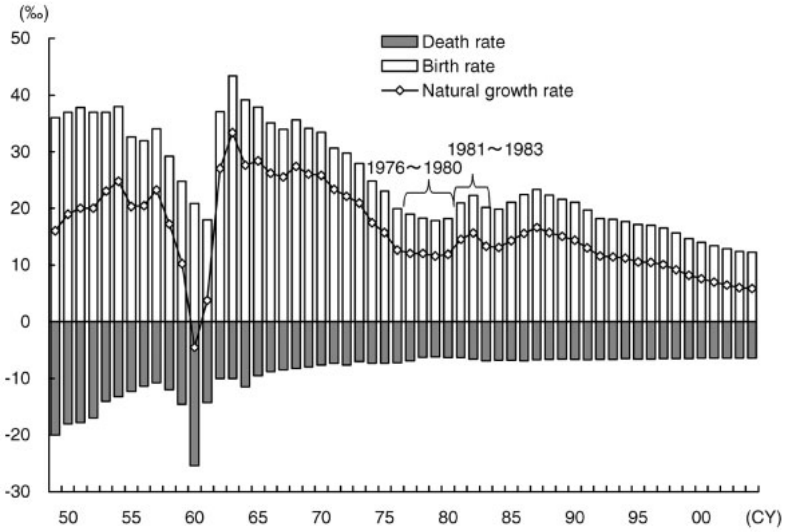
Chart 10 shows that the birthrate (the number of births per population of 1,000) dropped sharply from the 1970s reflecting the decline of the TFR. Given the compounding effect of the relative decline of the parent–generation population (the decline of the birthrate around 1955~1961), the birthrate during the period from 1976 to 1980 (corresponding to those aged 23~27 as of 2003) fell below 20‰.

Even though the birthrate recovered to the 20‰–level around 1981~1983, the percentage of girls in new–born infants started to decline. While this report will not go into further detail regarding the falling percentage of female babies, the One Child Policy is thought to be a factor (Note 5). In any event, the fact remains that the recovery of the number of women is still slow at this juncture despite the rise of the birthrate because of the decline in ratio of women in the population.

As the foregoing shows, the direct/indirect cause of the young female population – in turn a cause for the worker shortage – is not only the One Child Policy but more broadly, China's demographic policy starting from 1971.

Another byproduct of the One Child Policy is the inclination of parents to provide their child with higher education (according to an electronics parts manufacturer in Xiamen). It is true that the percentage of women with junior college–level academic backgrounds in the female work force is rising. This group would not comprise so–called "workers", as referred to in this report.

Chart 10: The rate of birth, death and natural population growth



Note: The unit ‰ (per mil) = per thousand.
Source: National Bureau of Statistics of China, *China Statistical Yearbook*

5. Causes of the worker shortage from the perspective of the trends in number of workers

Subsequent to the previous section which examined the causes of the worker shortage from the perspective of demographic trends, this section will look at the trends in number of workers according to types of business and forms of corporate ownership.

(1) Hypotheses regarding the causes of the worker shortage

As indicated in Section 3, the worker shortage is said to stem from (a) the preference for jobs in the services and agricultural

sector among workers, and (b) the sharp rise of labor demand in the manufacturing sector. We shall deal with each of these contentions in section below.

a. Excessive labor demand in the manufacturing sector

In the event we focus upon the manufacturing sector, the prevailing notion stresses the increase of labor demand in the Yangtze delta region centering around Shanghai in East China. It is also pointed out that the construction of factories in local cities and rural areas is creating new job opportunities for workers.

There are other hypotheses that stress the rise of labor demand in specific sectors such as apparel over region. We shall return to this contention in more detail later.

b. Preference for jobs in services (tertiary industry)

The shift of employment to the service sector is a universal phenomenon once the economy reaches a certain developmental stage. China appears to be no exception in this regard. The services sector offers more jobs along with the rise of the income level while job seekers start to show a preference for jobs which are less strenuous in comparison to factor workers. To a greater or lesser extent, this would result difficulties to attract workers in the manufacturing sector.

Although these tendencies would intensify as long as China's high economic growth continues, it would be necessary to deal separately with the extent to which the labor shift to the services sector is making it difficult for manufacturers to attract workers.

c. Preference for jobs in agriculture

Even though it may seem odd that China's agricultural sector is turning more attractive for workers, this is still true as far as the year 2004 (or even 2005) is concerned. This stems from the rise of farmers' income levels due to the rise in price of agricultural products, the increase of government subsidies and tax cuts on farm taxes.

Despite the rise of farmers' income levels, there is still a wide income gap between rural and urban areas. As of 2004, the per capita net income was 2,936.4 yuan in rural areas, compared to a per capita disposal income of 9421.6 yuan in urban areas. Given such a large gap, a slight rise of the income level would seem to provide scant incentive for workers to stay in rural areas. However, note that it would be difficult for a farmer seeking work in the city to reach average income levels in urban areas. Furthermore, considering the difference in price levels between urban and rural areas, the gap would not be as wide as it seems at first. Moreover, rural workers do not necessary head for the cities in search of work opportunities given the harsh working and living conditions faced by some migrant workers. They can either opt for jobs in agriculture to stay in rural areas with their families or choose to work in urban areas in search of higher wages even at the expense of harsh labor conditions.

(2) The increase of job offers in the manufacturing sector is the main cause of the worker shortage

Firstly, is the rise in popularity of the agricultural sector in 2004 having a large impact upon the labor market? In 2004, the number of workers in agriculture and fisheries appears to have dropped by approximately 7 million (**Chart 11–A**), marking out a significant drop in recent years (Note 6). As a result, the percentage of those with jobs in agriculture in the total number of female workers is declining, most notably among young workers (**Chart 11–B**). Thus, despite a slight rise in popularity of agricultural jobs, it seems somewhat far–fetched to maintain that the shortage of young female workers stems mainly from the growing attractiveness of jobs in agriculture.

Chart 11: Trends in number of workers in agriculture, forestry & fisheries

(A) Trends in total number of workers in agriculture, forestry & fisheries (10,000 persons)

	Cities	Private enterprises	Rural areas	Total	Y-o-y change
01	483	39	32,451	32,974	-381
02	455	41	31,991	32,487	-486
03	485	47	31,260	31,791	-697
04	466	—	30,596	—	(- 682)

(B) Ratio of workers in agriculture, forestry & fisheries in female workers (%, % pt)

	2003 (a)	2004 (b)	(a)-(b)
Total	62.2	59.2	-3.0
16～19 yr olds	57.5	52.1	-5.4
20～24 yr olds	50.8	45.9	-4.9

Note: In 2004, the year-on-year (y-o-y) change in 2004 is the total of cities and rural areas.

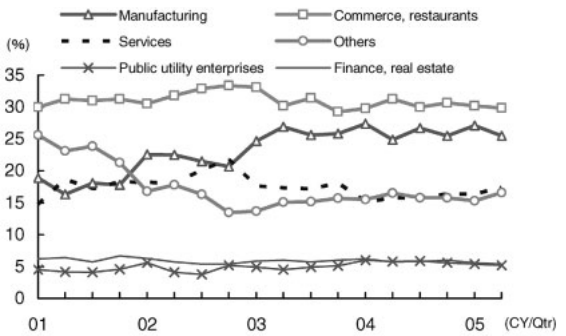
Sources: Ministry of Labor and Social Security of China, *Chinese Labor Statistics Annual*,
National Bureau of Statistics of China, *China Statistical Yearbook*.

However, if the agricultural sector had not gained popularity, it would have lost workers at an even faster pace, resulting in an exodus of farmers to urban factories. Therefore, a more plausible argument would be that the rising popularity of agricultural jobs is not the main factor behind the worker shortage and only served as a supplementary role (by slowing down the increase of migrant workers).

Turning to the tertiary sector, it is true that the number of workers has been increasing rapidly on a continuous basis. While it is plausible that the shift toward the service sector is making it difficult for the manufacturing sector to attract workers, the question is the extent to which this trend has progressed during the past few years.

To shed further light upon this issue, we looked at the percentage of manufacturers in total job offers. The percentage of manufacturers is unmistakably high during the past few years in comparison to 2001 just prior to the worker shortage (**Chart 12**). On the other hand, the percentage of job offers in sectors categorized in the tertiary industry has either been flat or declining.

Chart 12: Job offers – ratio of industrial sectors



Source: Observation Center for Information Network of China Labor Market, *Analysis on Labor Supply and Demand in Selected Cities*.

Next, a comparison of young female workers in urban areas (by industrial sector) in 2001 and 2004 reveals that the percentage in the manufacturing sector is rising (**Chart 13**) (Note 7). This shows that the shift away from the manufacturing sector did not occur at this time. On the contrary, the percentage of the tertiary industry (roughly equivalent to the real estate industry and "others") is declining.

Chart 13: Breakdown of young female workers in urban areas by industrial sector

(A) 16~19 yr olds (%)

CY	Agriculture, forestry & fisheries	Mining	Manufacturing	Electricity, gas & water utilities	Construction	Real estate	Others
01	13.8	0.0	17.9	0.9	0.6	0.4	66.4
04	14.4	0.2	28.8	0.3	0.5	0.2	55.6
(B) 20~24 yr olds							
01	9.0	0.4	17.9	1.8	1.6	0.6	68.7
04	9.1	0.3	18.5	1.2	1.3	0.7	68.9
(C) 16~24 yr olds (total)							
01	10.7	0.3	17.9	1.4	1.3	0.5	67.9
04	10.4	0.3	21.1	1.0	1.1	0.6	65.6

Notes: 1. Industrial sectors lacking in statistical continuity due to changes in classification in 2003 have been categorized as "Others".
2. "Others" plus "real estate" more or less equals the tertiary industry.
3. Although data on the total of the 16~19 age bracket and the 20~24 age bracket (C) are undisclosed, the figures above are estimates calculated by multiplying the total number of workers by the percentage of each age bracket.

Source: Ministry of Labor and Social Security of China, *Chinese Labor Statistics Annual*.

As the foregoing shows, there is scant evidence indicating that the preference for jobs in the services sector is rising among young female workers. Job offers have been increasing in the manufacturing sector during the past few years, to the extent that it is pushing back the shift toward the services sector, thus pushing up the percentage of workers in the manufacturing sector. The foregoing leads to our view that, from the perspective of employers, the main cause of the worker shortage is be the sharp rise of labor demand in the manufacturing sector. The most reasonable interpretation is that each of these shifts and events are intensifying competition for young female workers between the manufacturing sector and certain tertiary industry sectors such as restaurants.

6. Four perspectives on the supply and demand of workers in the manufacturing sector

We shall look more closely at the supply and demand for workers in the manufacturing sector from the four following perspectives.

(1) The shift to East China

As mentioned earlier, there are many who cite the exodus of rural migrant workers to East China as the background factor to the escalation of the worker shortage in South China.

Although the National Bureau of Statistics and the Ministry of Agriculture of China provide research on the movements of rural migrant workers, they all have shortcomings regarding the retroactivity and continuity of statistical data. Thus, despite the lack of data confined to the manufacturing sector, we referred to the *National Statistics of Temporary Residents* (indicating the number of people leaving their registered domicile for three days or longer) by the Ministry of Public Security (**Chart 14**). Note that the migrant workers in these statistics were not necessarily farmers in the first place and, by the same token, will not necessarily continue to reside in urban areas in the future (they may opt to reside in rural areas).

Firstly, as for the total number of migrant workers, the rate of growth varies from year to year and lacks a clear trend. However, a breakdown reveals a high rate of growth in East China, with the total number of migrant workers edging closer to Guandong province.

In the Fujian province, the inflow of migrant workers is stagnating during the past few years, due perhaps to the development of East China. Even so, it is difficult to assess the situation in Guangdong province – the pace of migrant worker inflow does not appear to have slowed significantly during the past few years. Since data for 2004 in **Chart 14** are not yet disclosed, we shall refer to other data sources. According to the Department of Public Security of Guangdong Province, the migrant population (residing

for a period of six months or longer) increased 3.2 million, reaching a historical high of 23 million in 2003. However, according to Guangdong province Governor Huang Hua–Hua, the population reached 31 million in 2004. Although the continuity of the foregoing data cannot be ascertained, there is no evidence to date which indicates that the migrant worker inflow dropped sharply in 2004.

Incidentally, there has been a dramatic rise in number of workers in both the Guangdong ad Fujian provinces for two consecutive years in 2003 and 2004. Judging from the foregoing data, it appears quite certain that the economic development of East China was a factor behind the worker shortage in South China. In the case of Guangdong province, however, the worker shortage accompanying the increase of job offers in the Guangdong province is most likely a large factor (Note 8).

Chart 14: Trends in number of migrant workers (by gender and home province)

Nationwide total (10,000 persons)

	Total	Male	Female	Within province	Out of province	Others
97	2,513	1,499	1,014	1,058	1,452	3.1
99	3,005	1,769	1,236	1,101	1,900	3.7
00	3,874	2,258	1,617	1,294	2,577	3.4
01	4,260	2,473	1,787	1,385	2,869	6.2
02	5,131	2,986	2,145	1,576	3,547	7.5
03	5,709	3,282	2,426	1,784	3,918	6.6

East China

	Total	Male	Female	Within province	Out of province	Others
97	490	310	181	179	311	0.4
99	615	379	236	183	432	0.4
00	852	520	333	220	632	0.3
01	1,091	656	435	260	830	0.8
02	1,492	897	595	333	1,158	0.9
03	1,807	1,080	727	418	1,388	1.3

Guangdong province

	Total	Male	Female	Within province	Out of province	Others
97	894	419	475	258	633	2.5
99	1,095	521	574	266	827	2.7
00	1,519	732	787	342	1,173	2.9
01	1,508	719	788	342	1,161	4.8
02	1,766	864	902	368	1,391	6.1
03	2,006	983	1,023	458	1,543	4.6

North China

	Total	Male	Female	Within province	Out of province	Others
97	309	214	95	133	177	0.0
99	406	271	136	154	252	0.3
00	469	309	159	170	299	0.0
01	591	391	201	186	405	0.3
02	684	451	233	213	471	0.1
03	651	418	232	212	438	0.4

Fujian province

	Total	Male	Female	Within province	Out of province	Others
97	135	80	56	59	77	0.2
99	140	82	58	55	85	0.1
00	173	101	72	59	113	0.1
01	212	123	88	78	133	0.1
02	228	127	101	82	146	0.1
03	221	121	100	74	146	0.1

Other areas

	Total	Male	Female	Within province	Out of province	Others
97	683	476	207	429	254	0.0
99	748	516	232	444	304	0.2
00	861	595	266	502	359	0.1
01	859	584	275	519	340	0.2
02	961	647	314	580	381	0.2
03	1,024	679	345	622	402	0.2

Notes: 1. In the chart above, "migrant workers" refer to total workers in manufacturing, handicrafts, construction, transportation, commerce, restaurants and the repair industry. Although it is possible to ascertain the number of workers engaged in agriculture and domestic help, they have been omitted from the chart since they are small in number and only have a negligible impact upon overall trends. The self-employed and those on official duties and business do not fall within the purview of migrant workers and thus are not included.

2. "East China" includes the city of Shanghai and the Jiangsu and Zhejiang provinces. "North China" includes the city of Tianjin and the Hebei, Liaoning and Shandong provinces.

3. "Others" refer to the total of Hong Kong, Taiwan and Macau.

Source: Ministry of Public Security of China.

(2) The shift to rural areas

Even though the number of workers has been declining in rural areas, this is due to agriculture and fisheries dragging down the overall number of workers. The pace of increase is remarkable in terms of the manufacturing sector alone. In the past few years, the rate of increase has been extremely fast (**Chart 15**). The number of workers employed by manufacturers in rural areas is surpassing urban areas not only in terms of the pace of increase but also in terms of absolute number. In urban areas, the labor market is

dragged down by restructuring efforts by state–owned enterprises. Thus, the odds are high that the worker shortage in urban areas stems from the increase of job opportunities in rural areas. In interviews, we came across comments that "many (of the workers leaving South China) are being employed in their home provinces" (cited by an electronics manufacturer in Guangdong City).

Chart 15: Number of workers in the manufacturing sector

(10,000 persons)

CY	Total	Urban areas	Cities	Staff and workers	State-owned economic units/collective-owned units	Other units	Others	Private enterprises	Rural areas
94	9,613	5,764	5,492	5,434	4,836	598	58	272	3,849
95	9,803	5,832	5,493	5,439	4,743	696	54	339	3,971
96	9,763	5,744	5,344	5,293	4,564	728	51	400	4,019
97	9,612	5,580	5,130	5,083	4,255	827	47	451	4,032
98	8,319	4,390	3,826	3,769	2,625	1,144	57	564	3,929
99	8,109	4,156	3,554	3,496	2,270	1,225	59	602	3,953
00	8,043	3,934	3,301	3,240	1,934	1,306	61	633	4,109
01	8,083	3,787	3,070	3,010	1,619	1,391	60	717	4,296
02	8,307	3,802	2,981	2,907	1,325	1,582	74	821	4,506
03	9,003	4,066	2,980	2,899	1,142	1,757	82	1,085	4,937
04	9,646	4,207	3,051	2,960	981	1,979	91	1,156	5,439

Note: "Other units" refer mainly to private-owned enterprises such as foreign-owned enterprises and joint stock enterprises.

Source: Ministry of Labor and Social Security of China, *Chinese Labor Statistics Annual*.

In addition to the construction of plant and factories by domestic enterprises such as large household electronics companies, the rise of new business enterprises by migrant workers in their home provinces is said to be in the background to the rise in number of employed workers in rural areas. In Hunan province, 1,000 migrant workers set up 300 companies in their home provinces, creating jobs for 20 thousand workers (Note 9). In Jiangsu province, 45,700 migrant

workers established 10,459 companies in their home provinces (Note 10). Given the Chinese government's drive to upgrade infrastructure in inland areas, coupled with the improvement of the investment climate, the increase of labor–intensive enterprises in rural areas should continue for some time.

(3) China's accession to the WTO and the worker shortage

The worker shortage is not entirely unrelated with China's accession to the World Trade Organization (WTO). China's growing appeal as an export base, along with its entry to the WTO amid the surge of domestic demand, acted as a trigger for the surge of expectations toward the rise in demand for Chinese products, prompting both Chinese and foreign manufacturers to bolster their production sites in China. These events have resulted in the acute shortage of workers – in particular young female workers.

The apparel–related industry, among others, has been extremely active in bolstering output capacity, given the abolishment of import quotas of textile products imposed upon China since 2005.

(4) The end of restructuring efforts among state–owned enterprises

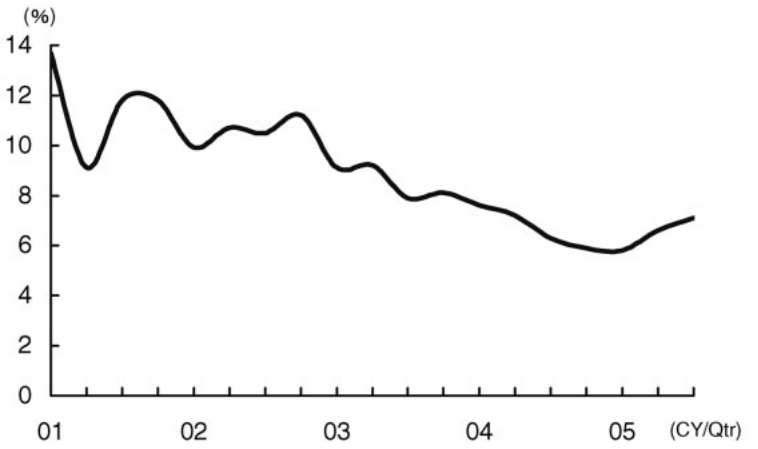
Turning to the number of workers in the manufacturing sector in **Chart 15**, note that the number of workers took a sharp rebound after a decline from 1995 to 2000. When limited to urban areas, even though workers in sectors comprised mainly of private enterprises ("Others" and "Individual–owned Enterprises" in **Chart 15**) are growing consistently, restructuring efforts by state–owned enterprises are dragging down overall growth from the peak in 1995 to 2001. From then onward, the number of workers took an upturn along with a pause in the restructuring efforts. Some state–owned enterprises may have started to hire new graduates and the unemployed. Furthermore, this should clearly indicate a dwindling supply of labor from layoffs by state–owned enterprises.

Chart 16 – showing the percentage of those were displaced from jobs in total job applicants – reveals a decline of the percentage of

displaced workers more or less synchronously with the escalation of the worker shortage. While older men are generally perceived as those who are most likely to be subject to layoffs, how are the conditions with respect to young women? Looking at the percentage of those who said that they were dismissed (subject to layoffs) as that the reason for being unemployed, we found only a negligible percentage among those in the 16~19 age bracket. However, in the 20~24 age bracket, the percentage is gradually declining from approximately 14% as of 1997, falling below 5% in 2004.

Since the number of workers employed by state–owned enterprises is not increasing at a fast pace, state–owned enterprises do not usually draw attention as a factor behind the worker shortage. However, in view of the foregoing developments, the odds are high that the ebb of restructuring efforts at state–owned enterprises is having a direct impact upon the supply and demand of workers.

Chart 16: Percentage of displaced workers in job applicants



Source: Observation Center for Information Network of China Labor Market, *Analysis on Labor Supply and Demand in Selected Cities..*

7. Concluding remarks

In this final section, we shall examine the corporate sector's efforts to resolve the worker shortage and the future course of the labor shortage problem.

(1) The cause of the worker shortage

The worker shortage in China has been examined from various perspectives. While the causes are complex, a simplified answer would be the rapid progress of "industrialization". Given China's accession to the WTO amid the its fast pace of economic growth, the number of workers in the manufacturing sector (including rural areas) grew strongly, reflecting the surge of expectations toward the demand for Chinese products mainly in the apparel–related industries which require a large number of young female workers. Meanwhile, the competition for workers escalated among manufacturers due to the ebb of restructuring efforts by state–owned enterprises. Moreover, the ratio of young female workers in the labor force fell because of demographic shifts, thus serving as a large impact upon companies industries such as apparel.

(2) Efforts to resolve the worker shortage

We have been able to ascertain several measures to resolve the worker shortage in media coverage and interviews.

First, the fastest and most effective measure to tackle the worker shortage would be wage hikes. Even though the labor market is tightening, rural areas still have vast surplus labor, enabling enterprises to hire more workers by raising wages and other labor conditions. Nevertheless, wage hikes would serve as a huge cost burden for labor–intensive enterprises.

Another popular option ranking next in line in terms of immediate effect is the utilization of older female workers aged in the mid–20s or older. However, assuming that women balance jobs and household chores, special arrangements would be necessary given

the difficulty to provide full–time employment and flexible overtime.

The relocation of factories from major coastal cities to inland areas and the outskirts of large coastal cities would be another option. Since this would also enable enterprises to avoid the rise of costs other than labor such as land costs, these shifts will likely persist. However, in many cases, infrastructure in these areas would be inferior to those in major cities. The decisive element would be to what extent enterprises are able to attract rural workers wishing to find work close to their home towns.

Lastly, the transfer of factory sites to third countries and the construction of second factories in third countries would be another viable option. Japanese apparel makers, as well as Taiwanese and Hong Kong companies, are also setting up production sites in Vietnam, given the additional merit of being able to avoid yuan appreciation risks. Nevertheless, in the event most of the company's business clients are in Japan, the transfer of production sites would not be easy because of problems such as raw material imports and delivery dates. In the light of these circumstances, a move to India would be even more difficult than Vietnam.

(3) Future developments

Will the worker shortage continue to escalate? The answer would be in the affirmative in the event the Chinese economy continues to grow at a breakneck pace surpassing 9%. Therefore, in the section below, we shall assume that the Chinese economy will slow down to cruise–level in the near future in response to the government's measures to cool down excessive investment. We shall also assume that the rise of non–farm workers in rural areas will also slow to some degree as a result of the foregoing.

a. Permanent negative factors

The ebb of restructuring efforts by state–owned enterprises would be a permanent negative factor toward the supply–demand balance of workers. **Chart 15** indicates that the number of workers at state–owned and collective manufacturers fell by at least

approximately 3 million every year from 1997 to 2002. In 2004, the decline in number of workers stood at approximately 1.6 million. Considering the sharp drop in number of workers at state–owned and collective enterprises already, it is unlikely that the number of workers will continue to decline at a rate of 3 million per annum even if further restructuring measures are implemented.

b. Temporary negative factors

China's accession to the WTO is an unmistakable underlying factor of the recent surge in number of workers in the manufacturing sector. In this paper, we shall assume a lapse of four years from China's entry to the WTO in 2001 and that the accompanying investment boom has run its course during this period. In particular, in the case of the apparel–related industries suffering a severe worker shortage, moves to expand output facilities in China should slow down, considering mounting trade frictions with the US and Europe stemming from the sharp rise of exports from China in the course of trade liberalization in 2005. Given the serious electrical power shortage, rising speculation on the appreciation of the yuan accompanying China's foreign exchange policy shifts, coupled with the worker shortage itself, the odds are high that a further concentration of labor–intensive industries (such as apparel) in China may be averted.

Furthermore, the attractiveness of agriculture in 2004 should turn out to be a temporary phenomenon, in consideration of the fact that the abolition of the farm tax will be more or less completed in 2005 and that the farm sector is fundamentally a sector with excess workers. Since approximately 9 million workers in the total surplus labor force (approximately 140 million workers) is estimated to be comprised of young female workers in the 16~24 age bracket, corporate employers would be able to attract more migrant workers by providing better work conditions.

c. The demographic factor – a short–term or long–term factor?

The assessment of the impact of the dwindling birthrate tends to

be divided between those who regard it as a short–term factor and those who see it as a mid– to long–term factor.

From a short–term perspective, the fall of the young female population accompanying the dwindling birthrate will most likely start to ease. **Chart 9** indicates a large population group born in or after 1986 (aged up to 17 in 2003 and up to 19 in 2005) with parents born during the baby boom. This large population bracket (the "Baby Boomer Jr. generation") will start to enter the labor market in the near future. Barring an excessive attraction of workers to the tertiary industry, the generation born during the period from 1986 to 1990 should surpass the 1980~1985 generation by approximately 800 thousand in terms of the average number of female workers in the manufacturing sector.

Even so, a note of mention is necessary that the dwindling birthrate is clearly an on–going factor. A full–scale decline of the youth population is in store after the Baby Boomer Jr. generation.

d. Conclusion

Judging from the above, we are inclined toward the view that a sharp acceleration of the worker shortage may be averted for the time being. Even though a reversion to labor practices allowing employers to leave wages unchanged for years or to delay wage payments is unlikely, we believe that it would be possible to secure workers by a combination of the following efforts: (i) the improvement of labor conditions by, for example, raising wage levels commensurate to the rate of economic growth and price movements, and (ii) the utilization of those aged above the mid–20s (in particular those born in the period between 1963 to 1971) in the form of part–time workers.

Obviously, there will be geographic disparities. For example, there are outcries regarding the shortage of workers among corporate employers in Guangdong province while the Public Security Department of the province indicates that the rise of the migrant population would make it difficult to maintain law and order. Given unresolved issues such as migrant worker social security and

children's educational rights, an unregulated acceptance of migrant workers may well lead to future social unrest. Shenzhen is said to face problems regarding land and water resources, energy supply and environmental burdens unless it takes effective measures toward population growth. The most forward–looking areas in Guangdong province will likely evolve out of labor–intensive industries and strive to shift toward a more advanced industrial structure.

The falling birthrate will start to have a full–fledged impact from the generation born in or after 1991 and reaching 12 (or younger) as of 2003 (14 or younger as of 2005). Depending upon the rate of economic growth, the odds are high that it will become difficult again to secure young female workers around 2010 when this generation starts to enter the labor market. In the same year in 2010, the baby boom generation will reach 39~47. The risks of China losing its attractiveness as a low–wage export base will likely rise around this time.

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Notes:

1. http://www/molss.gov.cn/news/2004/0908a.htm
2. Take, for example, a case where there are 40 job offers for male workers, 50 job offers for female workers and 10 job offers with no requirements regarding gender and there are 60 male applicants and 40 female applicants. In this case, the 10 job offers with no requirements would be allocated to male job offers and female job

offers by a 60:40 ratio. Since the resulting job offers would be 46 male job offers and 54 female job offers, the resulting job offers–to–applicants ratio would be as follows: male (46÷60≒0.77), female (54÷40＝1.35).

3. Even though quarterly data are suited for fixed–point observations of recent conditions, annual data should be examined for cyclical judgments because of seasonal (or temporary) deviations in labor supply–demand (by jobs).
4. Dalian Evening News (April 28, 2005).
5. Refer to Wakabayashi [2005] (pp 132~136).
6. According to the Rural Survey Organization of the National Bureau of Statistics of China, the net increase of rural migrant workers dropped sharply from 9.2 million in 2003 to 4.33 million in 2004. While the data suggests a shift of workers to the agricultural sector, the reality may not be as it seems at first glance because of the increase of non–farm workers in rural areas.
7. While Chart 11–B includes rural areas, Chart 13 is limited only to urban areas.
8. In the case of Guangdong province, the circumstances would differ between Dongguan and Shenzhen with a concentration of labor–intensive manufacturers and Guangzhou with growing automobile and services sectors. As far as Dongguan and Shenzhen are concerned, they would be in a position competing for workers with East China.
9. Hunan Daily (May 30, 2005).
10. China Economic Times (May 25, 2005).

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