Wage Differentials and Ownership Structure

in Chinese Enterprises

Yi Chen
CERDI, University of Auvergne
swimmingyi@hotmail.com

Sylvie Démurger
CERDI, CNRS and the University of Hong Kong
s.demurger@u-clermont1.fr

Martin Fournier
CEFC, Hong Kong
mfournier@cefc.com.hk

First and preliminary draft, Comments welcome
October 15, 2003

Paper prepared for the Fourth International Conference on the Chinese Economy

"The Efficiency of China's Economic Policy"

October 23-24, 2003, CERDI-IDREC, Clermont-Ferrand, France

Corresponding author:
Yi CHEN
CERDI
65, bd. François Mitterrand
63 000 Clermont-Ferrand
FRANCE

Tel: (33-4) 73 17 75 01
Fax: (33-4) 73 17 74 28

1

Wage Differentials and Ownership Structure

in Chinese Enterprises[1]

Yi Chen
Sylvie Démurger
Martin Fournier

Abstract.

This paper analyses the determinants of wage differentials between five categories of enterprises (state-owned enterprises at central or provincial level, local publicly-owned enterprises, urban collective enterprises, private or individual enterprises and foreign-invested enterprises), in urban China in 1995. We find higher wages in state-owned enterprises and foreign-invested enterprises compared to collective and domestic private enterprises, but no significant difference in hourly wages between state-owned enterprises and foreign-invested enterprises in 1995. Indeed, although foreign-invested enterprises allow for higher global annual income, it is at the cost of longer working hours. Moreover, we find strong evidence for segmentation on the Chinese labour market in 1995, segmentation being the major determinant of observed differences in average wages between enterprises' types. In particular, we find a strong segmentation in favour of state-owned enterprises at central or provincial level against foreign-invested enterprises, average wages in foreign-invested enterprises meeting those in state-owned enterprises only because workers in foreign-invested enterprises have on average better socio-economic characteristics and in particular a higher education attainment.

Key words: labour market, segmentation, enterprise ownership, China.

Introduction

State-owned enterprises reforms and the implied changes on the China's labour market are one of the key elements in the process of China's transition toward a market economy, as well as a main challenge for coming reforms in order to maintain Chinese economic growth. Rather than privatising state-owned enterprises (SOEs) at the beginning of the reform process, the Chinese government decided to gradually reform the state sector, while encouraging the emergence of a concurrent non-state sector. Employment structure has thus been diversified thanks to the development of a dynamic non-state sector composed of collective enterprises, private and individual enterprises and foreign enterprises. Meanwhile, in spite of reforms gradually carried out, SOEs' performance kept deteriorating, leading to massive layoffs in recent years.

The evolution of the state and non-state sectors has had important implications on changes in both employment and labour income structures, which are key factors of the widening of income disparity observed during the past two decades. The enterprise ownership diversification led to increasing wage heterogeneity with different types of enterprises facing different market conditions.

This paper intends to study and analyse the determinants of wage differentials between the different types of enterprises in 1995. As pointed out by Zhao (2001), wage differentials between SOEs and private enterprises are one of the major forces, which should drive labour reallocation in China. Moreover, labour market segmentation between enterprises of different ownership is a potential source of growing income inequality (Sicular and Zhao, 2002).

This paper uses the household survey conducted by the Chinese Academy of Social Sciences (CASS), which gives detailed information on labour income as well as on individual and household characteristics for the year 1995. Our objective is to explain the observed differences in average wage between different ownership categories in order to assess the segmentation issue on the labour market in urban China. To do so, we first propose an econometric analysis on qualitative data to analyse the determinants of occupational choices and the allocation of the working population by type of enterprises. Second, we estimate Mincer wage equations by type of enterprises to explain the sources of observed differences in wages. Finally, we propose a Oaxaca-Blinder decomposition on the global model (occupational choice, enterprise choice and wage determination) to provide a global evaluation of the sources of observed differences in wages and the different forms of segmentation in the Chinese labour market.

Our results confirm previous findings of higher wages in SOEs and foreign-invested enterprises (FIEs) compared to collective and domestic private enterprises. However, contrary to previous findings in the literature, we find no significant difference in hourly wages between SOEs and FIEs in 1995. Indeed, even though total income is significantly higher in FIEs, the gap between FIEs and SOEs vanishes when controlling for hours worked. Moreover, we find strong evidence of a segmented labour market with SOEs offering higher hourly wages than all other types of enterprises including FIEs. Indeed, if FIEs allow for higher global annual income, it is at the cost of longer working hours. There thus seems to be a trade-off between high total income and high hourly wages.

The paper is organised as follows. Section 1 briefly presents the evolution of the labour market in China over the last two decades. Section 2 proposes a literature review on labour segmentation issues in China. Section 3 provides some descriptive statistics on wage differentials

by type of enterprise ownership structure in 1995. Section 4 presents the methodology used for analysing labour market segmentation by ownership enterprise. Section 5 discusses econometric results on the choice of the enterprise type as well as on wage equations in the various type of enterprise ownership. Finally, section 6 proposes decomposition results of wage gaps between enterprises types and proposes an evaluation of the segmentation taking place on the Chinese labour market.

1.   The evolution of the labour market in China

Before reforms were launched at the end of the 70s, there was basically no labour market in China. Jobs and wages in state-owned enterprises (SOEs) were determined within the central plan and a key function held by SOEs was to give employment to all the working-age population. The distribution of wages was based on an egalitarian principle, and within a given enterprise, promotion and wage increases were driven by age and experience within the work unit. In terms of income distribution between production factors, priority was given to capital accumulation necessary for industrial development. Hence, wages were maintained at a very low level. Finally, labour mobility was very limited both between sectors and regions.

Since China launched economic reforms at the end of the 70s, the Chinese labour market experienced great changes. In particular, the emergence of the non-state sector led to a reallocation of the labour force out of the state sector (composed of firms under the direct control of the central or local governments). As indicated in Table 1, the share of the non-state

5

sector in employment grew steadily since 1978 and accounted for 35% in 1995[2]. The non-state sector is composed of collective enterprises, foreign-invested enterprises[3], domestic private enterprises[4] and individual enterprises (*getihu*).[5] Collective enterprises have played an important role in offering additional employment at the early stage of the reforms (OECD, 2002). Otherwise, domestic private enterprises suffered from the restricting policies such as overtax, strict regulation, limited access to loans and skilled employees in the 1980s. During the 1990s, domestic private enterprises have experienced rapid development and gradually gained legitimacy, while the weight of collective enterprises in the economy has been reducing. As can be seen in Table 1, within the non-state sector, collective enterprises saw their share going down while the "private" sector grew from less than 5% in 1988 to 13% in 1995. Non-state enterprises (other than collective enterprises) became the leading engine of reform, introducing market forces into the Chinese economy. These enterprises are out of the central plan, their behaviour is closer to profit-maximisation objectives and they independently determine both their employment policy and salary scales.

---

[2] In terms of industrial production, the growing importance of the non-state sector is even more remarkable: the non-state sector's share of manufacturing output increased from 22.4 per cent in 1978 to 62.8 per cent in 1995.

[3] Firms with foreign ownership (*sanzi qiye*), are of three types: joint ventures (*hezi jingying qiye*), firms that have entered into co-operation agreements (*hezuo jingying qiye*) and wholly foreign-owned firms (*waizi jingying qiye*). Joint ventures are limited liability companies in which the Chinese and foreign partners invest and operate on a joint basis, sharing profits, losses and risks. Firms with co-operation agreements may involve a foreign partner, which provides technology and capital in exchange for a fixed return (Démurger, 2000).

[4] In 1988, the State Council issued the Tentative Stipulations on Private Enterprises (TSPE) to govern the registration and management of private firms. This document defined a private firm as "a for-profit organization that is owned by individuals and employs more than eight people." Firms that hired eight employees or less could still be registered as individual enterprises (*getihu*). The TSPE identified three types of private firms: those under sole ownership, partnerships, and limited liability companies. However, it was only in March 1999 that private ownership and the rule of law were formally incorporated into the Chinese Constitution.

[5] There are another two forms of ownership: domestic joint-ventures (*lianying qiye*), and share-holding companies (*gufenzhi qiye*).

Table 1 - **Employees by ownership – 1988-95 (%)**

	State-Owned enterprises	Collective enterprises	Foreign-invested enterprises	Private enterprises	Individual enterprises
1978	78.3	21.5	-	-	0.2
1980	76.2	23	-	-	0.8
1983	74.7	23.4	-	-	1.9
1984	70.6	26.3	-	-	2.8
1985	70.2	26	0.05	-	3.5
1986	70.2	25.7	0.09	-	3.6
1987	70	25.3	0.15	-	4.1
1988	70	24.7	0.2	-	4.6
1989	70.2	24.3	0.3	-	4.5
1990	70.2	24	0.4	0.4	4.2
1991	69.9	23.8	0.6	0.4	4.5
1992	69.7	23.2	0.9	0.6	4.7
1993	68.4	21.3	0.8	1.2	5.8
1994	66.7	19.5	1.2	2	7.3
1995	64.9	18.1	1.4	2.8	9

Source: *China Statistical Yearbook* (1994, 1996).

Note: From 1984, percentages do not sum up to 100% because of the existence of other ownership types (see note 5 above for details).

In the meantime, the state-owned sector also experienced important reforms. In a first step, some autonomy in decision-making for employment and wages has been given to SOEs managers. They were authorised to retain part of their profit and share it with their employees in the form of bonus wage payments. Bonus wages were supposed to provide incentives to employees and increase the overall productivity of SOEs. However, due to high supervision costs, the premium was often distributed on an egalitarian basis, and its impact is controversial. From 1993 onwards, SOEs have been allowed to put workers in the situation of waiting for a job (*xiagang*) by giving them subsistence revenue. Nevertheless, State intervention continues to

influence SOEs behaviours. Constrained by the inefficiency of their organisation structure, and submitted to growing competition from the non-state sector, SOEs have been facing a difficult situation, leading to massive lay-offs in the second half of 1990s.

Both the evolution of the non-state sector and changes in the state-owned sector have had significant impacts on income distribution as well as on the allocation of the labour force. Since reforms have been launched, income inequality among urban workers has been increasing, and the ownership structure of the economy played an important role in determining the changes of income inequality (Park *et al.*, 2003; Xu and Zou, 2000). Analyses of this increase in inequality need to account for the determinants of wage differentials among urban workers and in particular between different types of enterprises, claiming for a deeper analysis of the segmentation issue.

2.   Labour market segmentation in China: literature review

A growing number of works has been studying changes in the China wage structure over the last decade. Recently, the wider availability of nation-wide household surveys has allowed for deeper statistical analyses of this issue, focusing on various complementary aspects. In particular, a large number of papers focus on rising returns to education, emphasizing the higher returns to education experienced by the non-state sector, including both private or individual enterprises and foreign-invested enterprises (Maurer-Fazio, 1999; Fu and Gabriel, 2000; Zhang and Zhao, 2002; Li, 2003). Another area of research focuses on the wage gap between different groups of workers, analysing labour market segmentation between rural migrants and urban residents (Maurer-Fazio and Dinh, 2002; Meng and Zhang, 2001; Meng, 2002; Knight *et al.*, 1999; Fan, 2001, 2002) or discrimination against women (Meng and Miller, 1995; Qian, 1996; Gustafsson

and Li, 2000, Rozelle *et al.*, 2002). Most of these studies find that ownership structure of enterprises is a significant explanatory factor for observed wage gaps.

Hence, the empirical literature on the Chinese wage structure shows the potentially important role of enterprises ownership in explaining wage-setting behaviours. Moreover, as mobility between enterprises is constrained, the urban labour market in China is more likely to be segmented by ownership type[6]. This question has been studied in various papers, including Putterman (1992), Howell (1997), Dong and Bowles (2002) and Zhao (2001, 2002). This literature usually claims that the Chinese labour market is segmented by ownership. However, only Dong and Bowles (2002) and Zhao (2001, 2002) have done econometric analysis and results differ depending on data and econometric methods used and the magnitude of segmentation phenomena is usually not formally evaluated.

Dong and Bowles (2002) analyse the segmentation issue by ownership type, using survey data on SOEs, township and village enterprises, joint-ventures, and wholly foreign-invested enterprises in the light industrial goods sector in 1998. They find no significant differences in returns to education among firms of different ownership types, but significant differences appears in returns to experience, rewards to experience being significantly higher in foreign-invested enterprises than in the three other categories of ownership. They conclude in favour of a decreasing segmentation of the labour market by ownership, at least in the light industrial goods

---

[6] According to Dong and Bowles (2002), in transition economies, "dualism is typically characterised as resulting from the coexistence of firms that still operate, at least partially, according to the norms established under the centrally planned economy and new firms that have emerged during as part of the transition to a market-oriented economy. […] The existence of both types of firms during the transition is likely to lead to segmented labour markets with wage-setting behaviour varying between the two sectors as a result of differences in the market orientation of firms […]." (p. 171).

sector, and acknowledge that segmentation by firm or by regions might nevertheless be an important force in explaining wage differentials.

Closer to our approach are the works by Zhao (2001, 2002). These papers look at wage differentials among enterprises of four types of ownership (SOEs, urban collectives, domestic private enterprises and foreign-invested enterprises). Zhao finds that, after taking account of non-wage benefits, workers in SOEs earn significantly more than workers in urban collective or domestic private enterprises. She claims that because of the duality of the Chinese economy, foreign-invested enterprises have to pay a higher salary to attract skilled workers. On the opposite, they have access to an abundant non-skilled labour force, to which they can offer relatively low wages. However, the dataset used in these papers do not include information on hours worked, nor details on non-wage income[7]. In our paper, we show that results can be quite different when these two aspects are accounted for in a more adequate way[8].

Based on the different results from the existing literature, our paper aims at testing and evaluating the magnitude of urban labour market segmentation in China, using household survey data from the Chinese Academy of Social Sciences (Chinese Household Income Project) in 1995. We examine whether the Chinese urban labour market is segmented by ownership structure and how much this segmentation contributes to wage differentials among workers. We first estimate a multinomial logit model to analyse the determinants of the choice of sectors between SOEs at central or provincial level, local publicly owned enterprises, urban collective enterprises, private or individual enterprises and foreign-invested enterprises. We then estimate wage equations by

[7] Zhao (2002) uses "secondary data" containing information on pension, housing, and health care, which cannot be directly matched with the wage data used.

[8] Even though some dimensions of non-wage income are still not accounted for, CHIP data include information on wages as well as bonuses, allowances, subsidies, and income in kind at the individual level.

type of enterprises to explain the observed wage differentials among the five categories of enterprises. Finally, we propose a decomposition of wage differentials into what comes from the distribution of individual characteristics and what can be imputed to the segmentation of the labour market.

3. Wage differentials in 1995: some descriptive statistics

1. Data set and variables definition

Our data come from the 1995 survey of the China Household Income Project (CHIP). These data were collected in 1996 by a team headed by the Institute of Economics, Chinese Academy of Social Sciences (Riskin *et al.*, 2001), and cover 6,931 households and 21,694 individuals in urban China. The survey covers 11 provinces[9], among which only 4 are located along the coast (Beijing, Liaoning, Jiangsu and Guangdong).

The sample we use in this study is composed of 11,238 workers. We chose to consider only individuals aged 16 to 60, who declared working at least a part of the year and earning (positive) wages. Owners of private or individual enterprises are not included in the sample, since we cannot disentangle wages from profit in their case.

The wage variable is defined as being the sum of the base salary, bonuses, allowances and subsidies (except those allowances given while "waiting for a job", *xiagang*), other wages (including overtime wages and wages for special circumstances), other income from work unit (except hardship allowances) and income in kind. As a base for comparison in the descriptive

---

[9] The sample includes the following provinces: Beijing, Shanxi, Liaoning, Jiangsu, Anhui, Henan, Guangdong, Yunnan, Sichuan, Gansu and Hubei.

part, we also use labour income, which includes income for individual or private enterprises owners. Labour income is thus composed of the wage variable, plus other income from labour (including from a second job) and private or individual enterprise proprietor's pre-tax net income. Hourly wages are defined as the ratio between wages and the number of declared hours worked in a year.

We consider 5 types of enterprises ownership: SOEs at central or provincial level, local publicly-owned enterprises, urban collective enterprises, private or individual enterprises and foreign-invested enterprises (comprising both Sino-foreign joint ventures and foreign-owned enterprises). Note that, at the aggregate level, SOEs at central or provincial level account for 9.3% of the total number of SOEs, while local publicly-enterprises account for the remaining 90.7%. However, SOEs at central or provincial level are on average much bigger since they employ 37.7% of the total labour force in the state-owned sector[10].

2. Wage differentials by ownership

As can be seen from Table 2, both wages and labour income are the highest in foreign-invested enterprises and the lowest in urban collectives. Among state-owned enterprises, where wages rank second after foreign-invested enterprises, people working in SOEs at central or provincial level tend to earn more than people working in local SOEs. Finally, workers employed in private or individual enterprises earn a little bit more than those working in urban collectives.

The decomposition of wages by components confirms that non-wage benefits are important when accounting for differences between the state and the non-state sectors (Zhao, 2002). Although our dataset might not include all kind of non-wage benefits (such as pensions or personal connections), Table 2 nevertheless shows that the highest bonuses and subsidies are indeed given in SOEs as compared to the non-state sector (both domestic and foreign). In

---

[10] Source: *China Labour Statistical Yearbook*, 1995.

particular, it shows that SOEs give much more subsidies (such as housing, health care or child care subsidies) to their employees than non-state enterprises.

Table 2 – Average wage by ownership and its components

Ownership categories	SOEs at central or provincial level	Local publicly owned	Urban collectives	Private or individual enterprises	Foreign-invested enterprises
Number of obs.	3094	6182	1702	113	147
Wage	6997	6140	4795	5208	8213
Base wage	4021	3519	3077	-	6528
Bonus	1044	996	730	213	929
Subsidies	1323	1088	631	58	479
Income in kind	118	92	67	70	87
Labour income	7078	6243	4953	6422	8259

Source: Calculated by authors with the 1995 CHIP survey data.

Notes: 1. The sample includes individuals aged 16 to 60, who declared working at least a part of the year and earning (positive) wages. Owners of private or individual enterprises are not considered.

2. The wage variable is defined as being the sum of the base salary, bonuses, allowances and subsidies, other wages, other income from work unit and income in kind.

3. Labour income is composed of the wage variable, plus other income from labour and private or individual enterprise proprietor's pre-tax net income.

Mean tests show that in terms of average wage, employees from foreign-invested enterprises earn significantly more than employees from SOEs at central or provincial level, and the latter earn significantly more than employees from local publicly owned enterprises. Employees from urban collectives and private or individual enterprises come last, the difference between the two being not significant.

Results presented Table 2 are quite usual in the literature and seem to be common knowledge for Chinese workers. However, taking into account hours of work leads to quite different and rarely mentioned results. Indeed, as far as hourly wage is concerned (Table 3), employees from foreign-invested enterprises and SOEs at central or provincial level still earn more than others, but the difference between the two categories is no longer significant. Thus, although employees from foreign enterprises appear as being the best paid in terms of total wage, they work significantly more in a week than employees from the state sector, which reduces considerably the differences in wage rates among the two categories. At the bottom of the hourly

wage scale, we still find employees from private or individual enterprises. Indeed, the number of hours worked in a week is the highest for the latter category, which makes employees earn much less both in terms of total wage and hourly wage.

Table 3 – Total wage, hourly wage and number of hours worked in 1995

Ownership categories	SOEs at central or provincial level	Local publicly owned	Urban collectives	Private or individual enterprises	Foreign-invested enterprises
Number of obs.	3094	6182	1702	113	147
Average wage	6997	6140	4795	5208	8213
Coefficient of variation	*0.51*	*0.59*	*0.68*	*0.92*	*0.76*
Average hourly wage	3.49	3.02	2.41	2.04	3.73
Coefficient of variation	*0.64*	*0.71*	*0.83*	*0.996*	*0.80*
Worked hours per week	41.4	42.3	43.3	56	47
Coefficient of variation	*0.17*	*0.18*	*0.22*	*0.29*	*0.19*

Source: Calculated by authors with the 1995 CHIP survey data.

Notes: See Table 2. The worked hours per week are calculated by multiplying the number of work hours on an average day by average number of work days per week in 1995.

Finally, Tables 4 and 5 show total wage and hourly wage comparisons by sex, educational level and region. On average, men tend to be better paid than women, wages tend to increase with the level of education, and workers living in coastal fast-growing provinces (Jiangsu and Guangdong) tend to earn more than those living in non-coastal provinces. However, concerning the level of education, a closer look at differences reveals that in private or individual enterprises, a college level of education does not imply a higher salary. On the other side, in foreign-invested enterprises, the most remarkable effect of education is to be found for highest level of education (professional or college).

Table 4 – Average wage by ownership and by working population

	SOEs at central or provincial level	Local publicly owned	Urban collectives	Private or individual enterprises	Foreign enterprises
Sex					
Male workers	7321 (1849)	6574 (3299)	5300 (664)	5813 (54)	8823 (80)
Female workers	6517 (1245)	5644 (2883)	4471 (1038)	4654 (59)	7484 (67)
Education level					
Less than primary	5883 (7)	3795 (12)	3274 (18)	8800 (1)	(0)
Primary	6145 (107)	5782 (219)	4479 (177)	3817 (14)	6272 (6)
Lower middle	6656 (758)	5673 (1695)	4305 (812)	4935 (50)	8250 (40)
Upper middle	6568 (634)	5622 (1584)	5086 (453)	5693 (36)	8044 (44)
Middle technical	6980 (612)	6368 (1140)	5893 (124)	5396 (5)	5991 (24)
Professional	7148 (573)	6891 (1058)	6357 (99)	9692 (4)	9806 (21)
College	8374 (403)	7545 (474)	7867 (19)	2953 (3)	11333 (12)
Region					
Coast	10004 (343)	8863 (1213)	6824 (490)	7273 (46)	9248 (78)
Non-coast	6622 (2751)	5476 (4969)	3974 (1212)	3791 (67)	7042 (69)

Notes: 1. The sample includes individuals aged 16 to 60, who declared working at least a part of the year and earning (positive) wages. Owners of private or individual enterprises are not considered.

2. Number of observations between brackets.

3. "Coast" refers to Jiangsu and Guangdong.

Table 5 – Average hourly wage by ownership and by working population

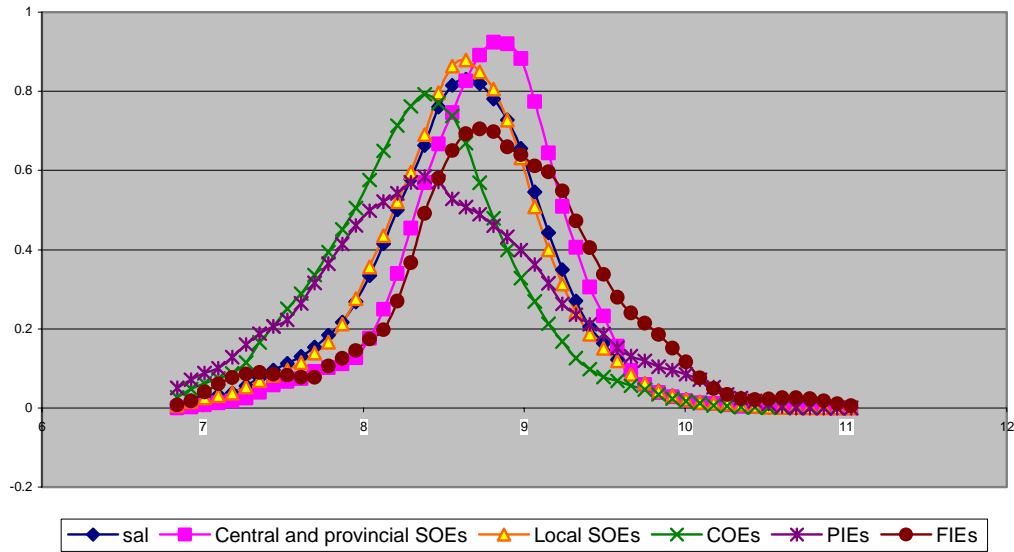|	SOEs at central or provincial level	Local publicly owned	Urban collectives	Private or individual enterprises	Foreign enterprises
Sex					
Male workers	3.65 (1849)	3.2 (3299)	2.66 (664)	2.32 (54)	4.09 (80)
Female workers	3.25 (1245)	2.82 (2883)	2.25 (1038)	1.78 (59)	3.29 (67)
Education level					
Less than primary	2.83 (7)	1.65 (12)	1.94 (18)	3.92 (1)	(0)
Primary	3.12 (107)	2.98 (219)	2.18 (177)	1.4 (14)	2.57 (6)
Lower middle	3.29 (758)	2.77 (1695)	2.22 (812)	1.9 (50)	3.53 (40)
Upper middle	3.28 (634)	2.77 (1584)	2.5 (453)	2.28 (36)	3.48 (44)
Middle technical	3.44 (612)	3.12 (1140)	2.89 (124)	2.2 (5)	2.84 (24)
Professional	3.46 (573)	3.37 (1058)	3.16 (99)	3.61 (4)	4.95 (21)
College	4.4 (403)	3.81 (474)	3.86 (19)	1.39 (3)	5.48 (12)
Region					
Coast	5.15 (343)	4.38 (1213)	3.27 (490)	2.73 (46)	3.91 (78)
Non-coast	3.28 (2751)	2.69 (4969)	2.06 (1212)	1.57 (67)	3.52 (69)

Notes: See Table 4.

3. Wage distribution by ownership

Coefficients of variation given Table 3 reveal that the highest differences among employees happen to be in private or individual enterprises, while the lowest differences are observed in SOEs at central or provincial level. This result comes at no surprise since private enterprises include very different types of units, from tiny street shops to small-scale firms.

These findings are corroborated by kernel density estimations for the distribution of income by ownership category, respectively for the logarithm of total wages (Figure 1) and of hourly wages (Figure 2). Each graph shows the distribution for the whole sample (*sal*, *salh*) and by ownership category sub-sample (*SOEs* to *FIEs*).

Figure 1 – Kernel Density of total wages by ownership

Kernel densities show a more concentrated wage distribution for SOEs and urban collectives (COEs) with thin distribution tails, whereas private or individual enterprises (PIEs) and foreign-invested enterprises (FIEs) have a much wider wage distribution. Figure 1 also tends to show a bimodal distribution for FIEs' wages, with a lower second mode for lower wages. This result is consistent with Zhao (2001)'s hypothesis of a segmented labour market between high and low-educated workers within FIEs. However, once hours of work are taken into account, the distribution becomes unimodal (Figure 2). Once again, apparent high wages in FIEs for high educated workers are to be attributed in a large extent to longer working days.

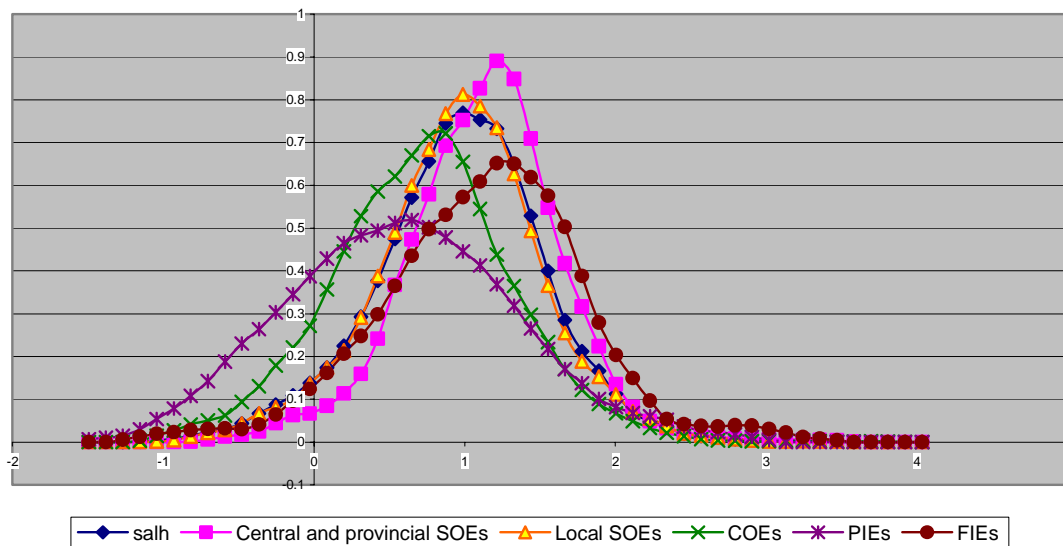**Figure 2 – Kernel Density of hourly wages by ownership**

Notes: In order to better visualise the density distribution, we consider the logarithm of the hourly wage only for those with total wage above 1000.

salh represents the hourly wage distribution of the whole sample. Local SOEs refer to local publicly owned enterprises, COEs to urban collective enterprises, PIEs to private or individual enterprises, and FIEs to foreign invested enterprises.

Kernel density estimations for hourly wages further illustrate our previous findings on differences in mean wages for SOEs and FIEs. Indeed, the difference between SOEs at central or provincial level and FIEs wage distributions observed for total wages (Figure 1) is much reduced for hourly wages. Figure 2 actually shows that the difference between the two distributions mostly comes from a greater variance for FIEs. Indeed, FIEs pay more workers at lower as well as at higher hourly wages than SOEs at central and provincial level, the modes for both distributions being quite similar.

It is thus true that working for a FIE might lead to higher wages, especially for high educated workers. However, it is a risky choice since FIEs have a wider wage scale and offer more below-average wages than SOEs.

4.   Methodology for analysing labour market segmentation by enterprise ownership

Our objective is to explain observed wage disparities between enterprises of different ownership structure using the Oaxaca-Blinder decomposition method [Oaxaca (1973), Blinder (1973)]. We intend here to isolate what is due to structural socio-economical differences between workers of different types of enterprises, and what is due to a segmentation phenomenon. The basic idea of this decomposition technique is to propose counterfactual situations corresponding to income that would be earned by workers observed in one type of enterprise, had they been faced with the income generating model observed for another type of enterprise. By "income generating model" we understand here the mechanisms through which individual income is determined by economic mechanisms given his/her socio-economic characteristics. Comparing observed and counter-factual income thus allows for an evaluation of segmentation phenomena. For example, a difference between observed income for SOEs' workers and the counterfactual income obtained under the "foreign enterprises model" provides an evaluation of the segmentation that occurs between these two types of enterprises. Indeed, if there was no segmentation, income under the SOEs' model (observed income) should be equal to income under the FIEs' model (counterfactual) for any given socio-economic characteristics.

Formally, let w_{ij} represent income of individual i belonging to enterprise type j. w_{ij} may be assumed to depend on three sets of arguments:

i)   Individual observable socio-demographic characteristics or those of his/her household (x),

ii)   Unobservable characteristics summarized (ε),

iii)   A set of parameters corresponding to the income model linking socio-demographic characteristics to observed income (β).

The income generating process can thus be written as a function H of these three sets of arguments:

$$(1) \qquad w_{ij} = H(x_{ij}, \varepsilon_{ij}; \beta_j)$$

Within this framework, observed differences in average income between two given types of enterprises may come from two different potential sources:

i)   A difference in average socio-demographic characteristics of workers in the two types of enterprises,

ii)   A difference in the income generating models between the two types of enterprises.

The first source of differences in average income between enterprises (*i*) corresponds to market-based differences in income, since differences in socio-demographic characteristics such as education or age lead to differences in average income. Different types of enterprises being specialised in different sectors, the socio-demographic structure of workers naturally differs. The latter source of differences in average income between enterprises (*ii*) reveals a segmentation process since individuals with the same socio-demographic characteristics will have a different income depending on which type of enterprises they are working for.

It is thus possible to decompose observed income differences into these two components as follows (2 enterprise types: *s* and *f*):

(2)   Explained difference: $E_{sf}^i = H(x_{is}, \varepsilon_{is}; \beta_s) - H(x_{if}, \varepsilon_{if}; \beta_s)$

(3)   Segmentation: $S_{sf}^i = H(x_{is}, \varepsilon_{is}; \beta_s) - H(x_{is}, \varepsilon_{is}; \beta_f)$

Indeed, the "explained difference" E_{sf}^{i} corresponds to the difference in income between workers of enterprise type s and workers of enterprise type f controlling for differences in remuneration of individual characteristics x. Symmetrically, the "segmentation effect" S_{sf}^{i} corresponds to the difference in income due to differences in remuneration of individual characteristics x between enterprise types s and f, for a given socio-demographic structure (that observed for workers in enterprise type s). The preceding formulation presented here at the individual level can then be averaged to evaluate the overall mean effect.

In other words, our point here is to answer the following two questions:

i)   What would be the difference in average income between workers in enterprises type s and f if workers were facing the same model in terms of income determinants? (*Explained difference*)

ii)   What would be the difference in average income between workers in enterprises type s and f if they had the same socio-demographic characteristics? (*Segmentation*)

This approach falls in the line of the well-known Blinder-Oaxaca decomposition methodology. A common problem with this methodology is path dependence. Indeed, the two effects are likely to depend on the reference population that is used to evaluate them. In other words, it is generally the case that:

$E^{sf} \neq E^{fs}$ and $S^{sf} \neq S^{fs}$

In the application that follows, this ambiguity is taken into account by considering simultaneously alternative definitions of the various effects, which provides a robustness test for the decomposition results.

The implementation of the decomposition methodology thus includes three phases. First, we estimate the remuneration structure of all types of enterprises correcting for potential

selection biases. Second, we simulate counter-factual incomes for all observed workers and all enterprises types. Finally, we compute average counter-factual incomes.

Since the choice of the type of enterprise and expected remuneration are closely linked mechanisms, estimating wage functions for various enterprises types implies to deal with the selection bias issue. Here, we model the enterprise type choice through a multinomial logit model and we estimate Mincerian earning functions correcting for selection biases through the procedure proposed by Dahl (2002). The first step estimation of enterprise type already provides valuable information, which is discussed in detail before turning to the analysis of earning functions and lastly, evaluating segmentation issues through the decomposition procedure presented above.

5.   The determinants of enterprise choice and wage differentials according to ownership structure

1. Enterprise type choice behaviours in 1995

Tables 6 and 7 show estimation results of the multinomial logit model on the choice of enterprise ownership of respectively, the male and the female populations, with the choice of the SOEs at central or provincial level as the compared base category. Before interpreting these results, we should mention that the estimations of occupational choice equations in China are to be handled with care since in 1995, the labour market was still under creation and individual occupational choices were thus facing hard constraints[11].

---

[11] Until 1995, graduate students from universities in China were assigned to a particular employment according to central planning related labour allocation mechanisms.

Table 6 – Estimation results of the Multinomial Logit Model for the enterprise ownership choice of men

	Local SOEs		Urban Collective Enterprises		Private and Individual Enterprises		Foreign Invested Enterprises	
Education	-0.575	(-5.00)	-0.269	(-14.02)	-0.230	(-4.80)	0.204	(0.41)
Age	0.002	(0.08)	0.049	(1.07)	0.231	(2.08)	-0.109	(-1.15)
Age^2	-0.000	(-0.58)	-0.001	(-1.71)	-0.003	(-2.38)	0.001	(0.83)
Communist	0.240	(3.57)	-0.602	(-4.77)	-1.847	(-3.03)	-0.303	(-0.82)
Number of children under 6	0.048	(0.54)	-0.237	(-1.63)	-0.354	(-1.14)	-0.383	(-1.03)
Number of children at school	-0.253	(-3.57)	-0.373	(-3.12)	-0.534	(-1.77)	-0.461	(-1.37)
Number of dependent members	0.131	(1.11)	0.282	(1.69)	-0.373	(-0.90)	0.355	(0.98)
Size of household	-0.011	(-0.06)	0.631	(2.23)	1.657	(2.58)	1.100	(1.68)
Way by which workers got their current job:								
Employment agency	0.392	(1.15)	1.462	(3.71)	dropped		1.098	(1.02)
Inherited	-0.071	(-0.49)	-0.110	(-0.52)	dropped		0.210	(0.28)
Self-found	0.114	(1.04)	0.664	(4.52)	4.400	(11.50)	2.345	(8.51)
Other	0.133	(0.78)	0.682	(2.97)	3.712	(7.69)	1.911	(4.32)
Relationship to the head of household:								
Spouse	0.289	(4.06)	0.420	(3.71)	0.603	(1.97)	-0.161	(-0.40)
Child	0.069	(0.45)	-0.163	(-0.69)	-0.254	(-0.49)	0.496	(0.98)
Others	-0.091	(-0.22)	0.534	(1.02)	1.370	(1.45)	0.561	(0.49)
Constant	2.120	(3.12)	1.277	(1.21)	-7.498	(-3.21)	-3.452	(-1.68)

Number of observations	6172	
Log likelihood	-5885	

Notes: The dummy variables by province are not presented in the table. The base category is "State-owned enterprises at central or provincial level".

Table 7 – Estimation results of the Multinomial Logit Model for the enterprise ownership choice of women

	Local SOEs		Urban Collective Enterprises		Private and Individual Enterprises		Foreign Invested Enterprises	
Education	-0.075	*-5.14*	-0.307	*-15.58*	-0.324	*-6.70*	-0.145	*-2.43*
Age	0.009	*0.25*	0.062	*1.26*	-0.078	*-0.75*	0.123	*0.85*
Age^2	-0.000	*-0.69*	-0.001	*-1.82*	0.001	*0.46*	-0.003	*-1.20*
Communist	-0.018	*-0.19*	-0.164	*-1.18*	-1.375	*-1.84*	-0.532	*-0.84*
Number of children under 6	0.239	*2.28*	0.004	*0.03*	0.242	*0.85*	-0.419	*-0.93*
Number of children at school	-0.089	*-1.10*	-0.344	*-3.16*	-0.348	*-1.34*	-0.274	*-0.65*
Number of dependent members	0.278	*2.05*	0.292	*1.72*	0.044	*0.11*	0.314	*0.62*
Size of household	-0.313	*-1.45*	0.069	*0.25*	1.149	*1.85*	-0.969	*-1.31*
Way by which workers got their current job:								
Employment agency	0.510	*1.64*	1.172	*3.40*	2.221	*1.99*	2.863	*5.08*
Inherited	dropped		-0.046	*-0.30*	dropped		0.978	*1.69*
Self-found	0.275	*2.37*	1.158	*8.78*	4.302	*10.29*	2.211	*6.58*
Other	-0.079	*-0.49*	0.483	*2.50*	3.184	*6.37*	1.283	*2.18*
Relationship to the head of household:								
Spouse	-0.071	*-0.91*	dropped		0.765	*2.18*	-0.008	*-0.02*
Child	-0.104	*-0.53*	-0.294	*-1.16*	0.116	*0.19*	1.230	*1.97*
Others	0.056	*0.22*	-0.051	*-0.16*	-0.570	*-0.70*	1.348	*1.82*
Constant	3.187	*3.72*	2.952	*2.68*	-0.482	*-0.20*	0.396	*0.14*

Number of observations   5584

Log likelihood   -5560

Notes: See Table 6.

Explanatory variables include individual characteristics (education, age, communist membership, the way of finding the current job, and geographical residence) as well as household characteristics (number of children of less than 6 years old, numbers of children above 16 at school, number of dependant members, size of household, and relationship to the head of household). As can be seen from Table 6, for men, education tends to divert from going to both collective enterprises and private and individual enterprises. More educated men tend to choose to work either in SOEs or in foreign-invested enterprises (the preference between these two categories being not significant). Moreover, SOEs at central or provincial level tend to attract more skilled workers than local publicly-owned enterprises. The same order of preferences is also found for women (Table 7), with a significant preference for SOEs against foreign-invested enterprises amongst educated women.

In terms of age, estimations reveal that for younger men, the elder, the more they tend to work in private or individual enterprises. After a threshold age ranging from 38 to 42 depending on the enterprise type, the tendency is reversed: older people tend to work in any other type of enterprises rather than private or individual enterprises. In particular, the difference is significant for the choice in favour of SOEs and foreign-invested enterprises (against private or individual enterprises). These results imply that on average, middle-aged workers are those who have the highest probability to work in private or individual enterprises, and to a certain extent in collective enterprises. Similar results, while less clear-cut, are found for women. A potential explanation for these results is that young men entering the labour market mostly start working in SOEs or in the foreign sector, before acquiring enough economic, human and social capital to switch to the riskier private sector. Moreover, a great number of elder workers, which have been

working their whole life in the state-owned sector, have little chances to switch to the less-secured private sector[12].

As can be expected, Communist Party members (both men and women) tend to have a lower probability to work in private or individual enterprises, and even tend to work more in SOEs than in urban collectives. The only "surprising" result here is that they also tend to work more in local publicly-owned enterprises than in SOEs at the central or provincial level.

Results for household size and the number of children and elderly in the household show that, the larger the household, the higher probability women have to work in private or individual enterprises, local SOEs and, to some extent, urban collectives. This result can certainly be explained by to the higher flexibility in hours worked in these enterprises, which allows for more time spent with children and elderly. For men, having a child over 16 at school raises the probability of working in SOEs. This type of enterprises seems to be a good compromise in terms of income resources needed for long studies expenses, free time allocated to children and insurance against job loss (the latter being true at least for the year under study: 1995).

Results for the channel through which workers found their jobs are quite straightforward. Self-found jobs correspond to foreign-invested enterprises and private or individual enterprises and designation by the State mostly concerns SOEs. More interestingly is the impact of the relationship to household head. Indeed, women spouses tend to favour private or individual enterprises and working children living with their parents have a higher probability of choosing foreign-invested enterprises. Of course, some endogeneity is taking place here, but these patterns

---

[12] Our results are consistent with Zhao (2001), which finds the highest level of education in SOEs, followed by foreign-invested enterprises, collective enterprises, and private or individual enterprises. Collective enterprises are also found to have a higher female to male worker ratio, and, together with private or individual enterprises, to hire older workers than SOEs or foreign-invested enterprises (with no threshold effect).

also correspond to risk diversification behaviours (85.7% of household heads in our sample are employed by central or local SOEs).

2. Income functions

Tables 8 and 9 present results of Mincer-type wage regressions by enterprise ownership, estimated using Dahl (2002) bias correction method[13]. As previously stated, the wage variable is measured by hourly wage in 1995. Two specifications are considered. The "basic" specification includes human capital characteristics (education and experience), communist membership and geographical residence variables (province dummies[14]). The "augmented" specification adds three types of variables: the nature of job, the occupation and the economic sector[15].

Wage equation regressions reported in Table 8 show higher returns to education in foreign-invested enterprises[16]. In terms of gender differences, returns to education appear to be higher for women, especially in SOEs at central or provincial level. For men, returns to education are higher in local publicly-owned enterprises than in SOEs at central or provincial level, while they happen not to be significant in urban collectives. On the contrary, for women, returns to education are higher in SOEs at central or provincial level than in both local publicly-owned enterprises and urban collectives.

---

[13] See Schmertmann (1994), Dahl (2002) and Bourguignon *et al.* (2003) for a discussion of Dahl (2002) advantage over Lee (1983) approach to selection bias correction with a multinomial Logit model. However, most of our results are robust to the correction method. Here we use Dahl's method with one probability (observed choice) and a 5 degrees polynomial specification.

[14] Guangdong is the reference province.

[15] The reference categories for the nature of job, the occupation and the economic sector are respectively permanent workers, unskilled workers, and industry.

[16] Note that for private or individual enterprises, returns to education appear to be even higher, but the coefficient is weakly significant and is thus not significantly different from coefficients for any other types of enterprises.

Contrary to Dong and Bowles (2002)[17], we find that returns to education are significantly higher in foreign-invested enterprises than in SOEs (both central and local) and urban collectives for men. For women, we find that returns to education are significantly higher in central SOEs as compared to both local SOEs and urban collectives. Compared to Dong and Bowles (2002), we find much higher returns to education, ranging from 2% to 10% for one additional year of schooling depending on enterprise ownership. Our results are however consistent with both Li (2003) and Zhao (2002)[18]. This makes Chinese rates of return to education more in line with standard Asian rates of return close to 10 % (Psacharopoulos, 1994).

The usual concave form for actual work experience[19] is found for SOEs and urban collectives but returns to experience do not appear to be significant for both private and foreign enterprises. We find wage peaks occurring at lower experience levels than previous studies (Liu, 1998; Johnson and Chow, 1997). Our results however correspond to Li (2003)'s. Moreover, differences between SOEs and urban collectives can be observed with steeper but more concave returns to experience in local SOEs for women and higher returns to experience in urban collectives for men. The absence of significant returns to experience in both private and foreign enterprises stresses the specificity of these newly developed sectors, in which experience accumulated on former SOEs positions does not correspond to strong efficiency gains.

---

[17] Their estimation is based on 1998 enterprise survey data from Dalian and Xiamen. Their estimated rate of returns to education is 2.3% and they find none of the interactive ownership dummies on human capital variables to be statistically significant.

[18] Using the same data base (CHIP) for 1995 and measure of hourly wages, Li (2003) gets the overall return to education of 5.3%, not far from our results. Moreover, taking together private or individual enterprises and foreign-invested enterprises as the private sector, he finds that the private sector rewards the highly educated more, while the state-owned sector rewards the less educated more. Using a 1996 urban household survey, Zhao (2002) finds the returns to education to be 4.2% for SOEs, 3.2% for collective enterprises, 0.9% for private or individual enterprises, and 7.9% for foreign-invested enterprises. Our results are consistent with these findings.

[19] We use the actual number of years of work experience given by the 1995 CHIP survey instead of calculating potential experience from age and the level of education.

Table 8 - Basic wage equation estimations by Dahl's bias correction method

	Central *SOEs*		Local *SOEs*		COEs		PIEs	FIEs
	Man	Woman	Man	Woman	Man	Woman		
Sex							-0.022	0.031
							-0.08	*0.27*
Education	0.020	0.074	0.038	0.047	0.025	0.044	0.118	0.081
	3.21	*7.01*	*10.86*	*8.66*	*1.10*	*2.85*	*1.74*	*3.14*
Experience	0.044	0.066	0.044	0.074	0.066	0.060	0.046	0.039
	9.90	*9.19*	*13.06*	*15.26*	*6.50*	*6.84*	*0.73*	*1.60*
Experience^2	-0.001	-0.001	-0.001	-0.002	-0.001	-0.001	-0.001	-0.001
	-6.44	*-5.50*	*-8.01*	*-11.40*	*-5.13*	*-5.76*	*-0.36*	*-0.69*
Communist	0.029	0.066	0.074	0.098	0.139	0.107	0.969	-0.009
	1.06	*1.44*	*2.81*	*3.13*	*1.42*	*1.55*	*1.11*	*-0.04*
Beijing	-0.590	-0.389	-0.247	-0.223	-0.457	-0.290		
	-6.48	*-2.96*	*-4.66*	*-3.72*	*-2.79*	*-2.01*		
Shanxi	-0.847	-0.636	-0.843	-0.772	-0.930	-1.021		
	-8.08	*-4.33*	*-14.86*	*-12.74*	*-6.39*	*-9.96*		
Liaoning	-0.777	-0.826	-0.644	-0.595	-0.612	-0.856		
	-10.03	*-7.67*	*-15.31*	*-11.75*	*-5.69*	*-10.10*		
Jiangsu	-0.440	-0.475	-0.413	-0.320	-0.507	-0.546		
	-5.97	*-4.44*	*-9.64*	*-5.77*	*-4.98*	*-6.34*		
Anhui	-0.825	-0.897	-0.708	-0.524	-0.768	-0.786		
	-9.76	*-7.59*	*-13.92*	*-8.23*	*-6.73*	*-8.58*		
Henan	-0.908	-0.781	-0.894	-0.873	-0.922	-1.112		
	-11.17	*-6.54*	*-19.76*	*-15.62*	*-7.50*	*-12.02*		
Hubei	-0.753	-0.526	-0.625	-0.492	-0.721	-0.736		
	-9.26	*-4.38*	*-14.10*	*-9.32*	*-6.05*	*-7.29*		
Sichuan	-0.628	-0.530	-0.656	-0.488	-0.725	-0.788		
	-8.11	*-4.75*	*-15.69*	*-9.35*	*-6.56*	*-9.56*		
Yunnan	-0.914	-0.756	-0.640	-0.536	-0.732	-0.856		
	-11.33	*-6.39*	*-14.50*	*-10.44*	*-5.76*	*-8.46*		
Gansu	-0.979	-0.653	-0.858	-0.822	-0.917	-1.226		
	-10.60	*-4.56*	*-15.87*	*-12.03*	*-5.06*	*-11.08*		
Coastal							0.803	0.359
							2.79	*2.49*
_m1	4.061	-5.03	15.82	-34.42	1.36	1.57	-18.63	4.50
	0.50	*-0.62*	*0.32*	*-1.46*	*0.21*	*0.32*	*-1.10*	*0.31*
_m2	-19.92	38.40	-65.39	175.86	-27.07	-11.36	264.11	-97.4
	-0.40	*0.59*	*-0.31*	*1.51*	*-0.51*	*-0.37*	*1.35*	*-0.30*
_m3	58.21	-161.52	137.39	-407.54	134.24	39.14	-1177.6	908.01
	0.41	*-0.69*	*0.31*	*-1.49*	*0.68*	*0.44*	*-1.33*	*0.33*
_m4	-80.52	299.23	-141.24	440.77	-269.86	-60.43	2078.08	-3685.2
	-0.43	*0.77*	*-0.32*	*1.44*	*-0.84*	*-0.53*	*1.26*	*-0.37*
_m5	40.11	-197.13	56.25	-179.92	181.65	32.58	-1247.8	5398.5
	0.43	*-0.82*	*0.32*	*-1.36*	*0.98*	*0.61*	*-1.19*	*0.42*
Constant	0.598	0.382	-1.168	2.303	0.523	0.281	-1.732	-0.527
	1.20	*1.03*	*-0.26*	*1.28*	*1.00*	*0.71*	*-1.64*	*-1.33*
Observations	1830	1227	3275	2862	652	1029	107	144
Adjusted R^2	0.25	0.27	0.34	0.29	0.23	0.26	0.10	0.13

Notes: The dependent variable is the logarithm of hourly wage. The five categories are: central or provincial state-owned enterprises, local publicly owned enterprises, urban collective enterprises (COEs), private or individual

enterprises (PIEs), and foreign-invested enterprises (FIEs). The coastal dummy variable takes 1 for Jiangsu and Guangdong, and 0 for other provinces.

As found in other works on pooled data for all types of enterprises (Gustafsson and Li, 2000; Li, 2003; Appleton *et al.*, 2003), our estimations show that being a Communist Party member raises significantly wages for those working in local publicly-owned enterprises. However, for other categories of enterprises, the impact of Party membership is non-significant.

Table 9 presents the augmented wage equation estimations. The introduction of additional explanatory variables leads to a non-significant effect of education in private or individual enterprises. Returns to education in foreign-invested enterprises remain the highest and very significant. We can see that, in general, coefficients for education are less significant. The decrease in significance can be imputed to the fact that the introduction of additional variables captures part of the education effect. Indeed, as previously discussed, more educated people tend to favour more dynamic sectors and occupations.

We now turn to the effect of additional variables entered in Table 9. First, concerning occupation, we can see that wages earned by men in SOEs at central or provincial level, as well as in urban collectives do not depend upon their occupation. For women working in central SOEs and men working in local SOEs, unskilled workers are paid significantly less than those having any other occupation. The wage difference between unskilled workers and other employees in private or individual enterprises as well as in foreign-invested enterprises is not significant, other things being equal. This implies that there is no segmentation between skilled and non-skilled workers, wages differences being only due to different endowments in socio-economic characteristics of workers such as education or experience.

Table 9 – Augmented wage equation estimations (Dahl)

	Central *SOEs*		Local *SOEs*		COEs		PIEs	FIEs
	Man	Woman	Man	Woman	Man	Woman		
Sex							-0.102	-0.033
							-0.31	*-0.27*
Education	0.018	0.060	0.020	0.024	0.012	0.022	0.042	0.070
	2.61	*5.16*	*4.94*	*3.98*	*0.51*	*1.36*	*0.48*	*2.36*
Experience	0.040	0.060	0.041	0.075	0.069	0.060	0.008	0.025
	9.13	*7.95*	*11.98*	*14.93*	*6.48*	*6.62*	*0.11*	*1.00*
Experience^2	-0.001	-0.001	-0.001	-0.002	-0.001	-0.002	0.000	-0.000
	-5.64	*-4.82*	*-7.76*	*-11.98*	*-5.34*	*-5.89*	*0.06*	*-0.04*
Communist	0.041	0.075	0.047	0.094	0.105	0.045	0.183	-0.202
	1.45	*1.54*	*1.71*	*2.87*	*1.00*	*0.63*	*0.17*	*-0.81*
Job nature								
Long-term contract	-0.034	0.026	-0.015	0.001	0.029	-0.057	-0.862	0.252
	-0.90	*0.48*	*-0.61*	*0.03*	*0.49*	*-1.31*	*-0.50*	*1.34*
Temporary	-0.435	-0.662	-0.064	-0.186	0.166	-0.068	-0.847	0.274
	-3.43	*-4.81*	*-0.68*	*-1.86*	*1.13*	*-0.83*	*-0.54*	*1.23*
Other	-1.063	-0.908	-0.148	-0.230	-0.185	-0.247	-1.024	0.491
	-3.25	*-3.16*	*-0.91*	*-1.15*	*-0.74*	*-1.91*	*-0.67*	*1.97*
Occupation								
Technical worker	0.013	0.306	0.192	0.230	0.131	0.253	1.046	0.401
	0.26	*4.91*	*5.29*	*5.74*	*1.33*	*3.11*	*1.08*	*1.64*
Head of institution	0.061	0.433	0.199	0.058	0.016	0.150	-	-
	0.87	*3.28*	*4.18*	*0.65*	*0.08*	*0.71*	-	-
Division head	-0.003	0.270	0.181	0.204	0.074	0.250	-	0.134
	-0.06	*2.89*	*4.35*	*3.12*	*0.63*	*1.97*	-	*0.35*
Office worker	-0.002	0.191	0.103	0.100	0.053	0.081	-0.512	0.285
	-0.03	*3.15*	*3.01*	*2.76*	*0.56*	*1.32*	*-0.45*	*1.40*
Skilled worker	0.061	0.186	0.062	0.042	0.014	-0.022	0.878	0.100
	1.40	*3.16*	*1.97*	*1.13*	*0.19*	*-0.43*	*1.22*	*0.57*
Other	0.018	-0.033	0.111	0.117	-0.026	0.016	-0.393	0.062
	0.23	*-0.34*	*2.02*	*2.35*	*-0.20*	*0.23*	*-0.76*	*0.27*
Economic sector								
Agriculture etc.	0.069	0.069	-0.028	-0.129	0.242	0.116	-	-
	1.35	*0.83*	*-0.47*	*-1.56*	*1.12*	*0.50*	-	-
Construction	-0.113	-0.129	-0.015	-0.052	0.207	0.087	1.618	-0.204
	-1.70	*-1.30*	*-0.31*	*-0.72*	*1.56*	*0.66*	*1.36*	*-0.31*
Communication	0.085	0.119	0.049	0.052	0.140	-0.067	-1.279	0.457
	1.88	*1.58*	*1.20*	*0.88*	*1.17*	*-0.64*	*-1.81*	*1.16*
Commerce	-0.020	-0.034	-0.065	-0.068	-0.206	0.027	-0.163	0.033
	-0.43	*-0.48*	*-2.25*	*-2.09*	*-2.76*	*0.51*	*-0.30*	*0.21*
Real estate	0.094	0.059	0.079	0.058	-0.187	-0.248	-0.736	-0.257
	1.08	*0.51*	*1.69*	*1.02*	*-1.31*	*-3.06*	*-1.04*	*-0.66*
Public services	0.066	0.013	0.094	0.111	0.015	0.068	1.583	0.289
	1.79	*0.25*	*3.08*	*3.16*	*0.10*	*0.68*	*1.08*	*0.42*
Finance	0.183	0.098	0.286	0.328	-0.062	0.315	-	-0.439
	2.64	*1.13*	*3.59*	*3.50*	*-0.27*	*1.92*	-	*-0.90*
Organizations	-0.006	0.009	0.090	-0.012	0.058	-0.167	0.121	0.413
	-0.17	*0.15*	*3.10*	*-0.30*	*0.15*	*-1.56*	*0.10*	*0.60*
Other	0.045	0.183	-0.015	-0.436	0.391	-0.007	-0.502	0.784

	0.30	*0.89*	*-0.14*	*-2.75*	*0.86*	*-0.02*	*-0.78*	*2.32*
_m1	7.273	-7.035	18.54	-48.21	0.780	0.833	-27.89	-11.92
	0.93	*-0.86*	*0.37*	*-1.22*	*0.12*	*0.16*	*-1.40*	*-0.75*
_m2	-41.02	47.273	-71.60	236.92	-27.98	-8.469	370.76	139.42
	-0.86	*0.72*	*-0.34*	*1.28*	*-0.50*	*-0.26*	*1.64*	*0.41*
_m3	118.52	-188.4	141.50	-531.74	143.40	30.64	-1604	-611.4
	0.87	*-0.79*	*0.32*	*-1.28*	*0.70*	*0.33*	*-1.58*	*-0.21*
_m4	-158.2	341.6	-138.4	558.01	-286.6	-45.85	2772.3	1039.7
	-0.88	*0.86*	*-0.31*	*1.25*	*-0.87*	*-0.39*	*1.47*	*0.10*
_m5	77.15	-222.7	52.78	-221.35	191.18	23.43	-1649	-404.6
	0.86	*-0.91*	*0.30*	*-1.19*	*1.00*	*0.42*	*-1.38*	*-0.03*
Constant	0.454	0.562	-1.415	3.608	0.694	0.616	0.807	-0.547
	0.94	*1.50*	*-0.32*	*1.13*	*1.27*	*1.50*	*0.44*	*-1.25*
Observations	1731	1148	3088	2693	618	977	96	134
Adjusted R^2	0.28	0.30	0.36	0.31	0.24	0.29	0.11	0.16

Note. 1. The dependent variable is the logarithm of hourly wage.

2. The five categories are: central or provincial state-owned enterprises, local publicly owned enterprises, urban collective enterprises (COEs), private or individual enterprises (PIEs), and foreign-invested enterprises (FIEs).

3. The regional dummy variables are omitted in the table.

4. The reference categories for the nature of job, the occupation and the economic sector are respectively permanent workers, unskilled workers, and industry

Concerning the economic sector of the job, those working in communication in central SOEs tend to earn significantly more than those working in industry. Except for women working in SOEs at central or provincial level, workers in both central and local SOEs employed in public services[20] or finance and insurance are also better paid than those employed in industry. Explanation for these results is quite straightforward since these economic sectors are State monopolies. On the contrary, workers employed in local SOEs in the sectors of commerce and trade, restaurants, etc. earn significantly lower wages than the reference (industry). For private or individual enterprises as well as foreign-invested enterprises, wage differences among economic sectors are less clear-cut, showing a lower degree of segmentation between economic sectors.

---

[20] The public service sector includes health, physical culture and social welfare; education, culture, arts and broadcasting; scientific research and technical services.

Finally, concerning the nature of employment, we find usual results with workers in SOEs holding a temporary short-term contract earning significantly less than those under a permanent contract. However, this finding does not hold for urban collectives, private or individual enterprises and foreign-invested enterprises.

3. Summary of estimation results

This section has shown that, even though the depth of the Chinese labour market in 1995 is still very limited, key explanatory factors can be isolated concerning workers' choice of enterprises ownership. Indeed, education, age and household composition appear to be important determinants. Most importantly, we find that education attainment is a key determinant for working in SOEs at central and provincial level as well as in foreign-invested enterprises.

Income function estimations provide a first insight on segmentation in the Chinese labour market. Indeed, estimation results are significantly different for the five types of enterprises studied, with large differences observed for return to education (higher in foreign-invested enterprises) as well as returns to experience (higher in SOEs and urban collectives). These results already show that segmentation is taking place since they predict that identical individuals are offered different wages in different types of enterprises.

Moreover, estimations of augmented wage equations show that segmentation is a multi-dimensional phenomenon in SOEs and to a lesser extent in urban collectives. Indeed, working in different sectors, on different occupations or having different contract lengths leads to different wage levels for individuals with identical socio-economic endowments.

6.   Decomposition of observed wage differences

Following the methodology presented in section 4, we can now use estimation results presented above to decompose wage differentials into what comes from structural socio-economical differences between workers in the various types of enterprises (characteristics effects) and what comes from segmentation on the labour market (segmentation effect). Results from this decomposition are given in Table 10 for the whole population of workers (male and female) [21].

As discussed above, for both men and women, the average hourly wage is the highest in foreign-invested enterprises, followed by SOEs at central or provincial level, local publicly-owned enterprises, urban collectives and private or individual enterprises. Decomposition results provide a direct evaluation of the segmentation taking place on the Chinese labour market between enterprises of different ownership structure. Three different types of results are obtained: *i)* observed wage gap is entirely due to segmentation and cannot be imputed to differences in individual characteristics of workers; *ii)* observed wage gap results in the conjunction of segmentation and differences in individual characteristics of workers; *iii)* observed wage gap cannot be explained by segmentation.

Table 10 shows that higher wage in central SOEs compared to local SOEs is entirely due to segmentation forces since differences in individual characteristics of workers would even predict a (small) gap in favour of local SOEs. The same result holds for the wage gap between central SOEs and urban collectives with no significant effect of differences in individual characteristics workers. These results highlight the much protected situation of workers in SOEs

---

[21] Tables A2.1 and A2.2, Appendix 2, provide very similar decomposition results by gender.

at central or provincial level, which are offered higher wages than workers in other types of enterprises.

In the same line, lower average wages in private or individual enterprises compared to other types of enterprises are entirely due to segmentation, individual characteristics of workers in private or individual enterprises being on average of higher standard. However, these results should be taken with caution. Indeed, as mentioned above, private or individual enterprises include very different economic situations and earning functions estimates for this category (upon which simulations are computed) have much higher standard errors.

Wage gaps between local SOEs, urban collectives and foreign-invested enterprises fall into the second category of results. Indeed, Table 10 shows that observed wages gaps for these three types of enterprises result from the combination of segmentation phenomena and differences in workers' socio-economic characteristics, with similar orders of magnitude for both effects. These results thus show a clear segmentation (explaining at least a quarter of wage differentials) in favour of foreign-invested enterprises against both local SOEs and urban collectives and in favour of local SOEs against urban collectives. Apart from SOEs at central or provincial level, our results thus show that foreign-invested enterprises tend to pay on average higher wages than domestic enterprises.

Lastly, the most surprising result from Table 10 concerns the decomposition of the wage gap between foreign-invested enterprises and SOEs at central or provincial level. Indeed, higher wages in foreign-invested enterprises compared to SOEs at central or provincial level are entirely due to the better characteristics of workers, particularly concerning education attainment. But, the strong segmentation in favour of SOEs at central or provincial level against foreign-invested enterprises nearly compensates for these better characteristics, lowering the wage gap to nearly

zero. This result may be quite surprising since it is very different from usual evaluation of the Chinese labour market since foreign-invested enterprises are usually believed to pay higher wages. However, as stressed above, two different factors are at stake here: first, higher total annual wages in foreign-invested enterprises are obtained at the cost of higher working hours and second, foreign-invested enterprises employ on average higher qualified workers.

We thus find a hierarchical segmentation on the Chinese labour market concerning hourly wages. Controlling for differences in workers socio-economic characteristics, SOEs at central or provincial level are the highest paying enterprises, before foreign-invested enterprises, and then come local SOEs, urban collectives and private or individual enterprises. This ranking mostly corresponds to the ranking of observed hourly wages. Segmentation is a key factor (and often the only factor) explaining wage gaps between enterprises of different ownership, except for wage differences between foreign-invested enterprises and SOEs at central or provincial level for which segmentation against foreign-invested enterprises is dominated by higher pays due to an average better qualification of workers.

Table 10 – Decomposition of the wage differentials[1]

Ownership[2]		Average wage			Characteristics Effect		Segmentation Effect	
Base	Simulation							
(A)	(B)	Y_A	Y_B	$Y_A - Y_B$	Value[3]	%[4]	Value[3]	%[4]
CSOEs	LSOEs	3.479	3.021	0.457	-0.162	*-35%*	0.619	*135%*
LSOEs	CSOEs	3.021	3.479	-0.457	0.141	*-31%*	-0.598	*131%*
CSOEs	COEs	3.479	2.433	1.046	-0.041	*-4%*	1.087	*104%*
COEs	CSOEs	2.433	3.479	-1.046	-0.058	*6%*	-0.988	*94%*
CSOEs	PIEs	3.479	2.091	1.388	-1.288	*-93%*	2.675	*193%*
PIEs	CSOEs	2.091	3.479	-1.388	0.524	*-38%*	-1.912	*138%*
CSOEs	FIEs	3.479	3.587	-0.108	-0.820	*757%*	0.712	*-657%*
FIEs	CSOEs	3.587	3.479	0.108	0.536	*494%*	-0.427	*-394%*
LSOEs	COEs	3.021	2.433	0.589	0.196	*33%*	0.393	*67%*
COEs	LSOEs	2.433	3.021	-0.589	-0.188	*32%*	-0.401	*68%*
LSOEs	PIEs	3.021	2.091	0.930	-0.475	*-51%*	1.406	*151%*
PIEs	LSOEs	2.091	3.021	-0.930	0.373	*-40%*	-1.303	*140%*
LSOEs	FIEs	3.021	3.587	-0.566	-0.322	*57%*	-0.243	*43%*
FIEs	LSOEs	3.587	3.021	0.566	0.425	*75%*	0.141	*25%*
COEs	PIEs	2.433	2.091	0.342	-1.055	*-309%*	1.397	*409%*
PIEs	COEs	2.091	2.433	-0.342	0.415	*-121%*	-0.757	*221%*
COEs	FIEs	2.433	3.587	-1.154	-0.730	*63%*	-0.424	*37%*
FIEs	COEs	3.587	2.433	1.154	0.334	*29%*	0.821	*71%*
PIEs	FIEs	2.091	3.587	-1.496	0.176	*-12%*	-1.672	*112%*
FIEs	PIEs	3.587	2.091	1.496	-0.770	*-51%*	2.266	*151%*

Notes: 1. Decompositions based on regressions results presented in Table 8.

2. CSOEs refer to SOEs at central or provincial level, LSOEs to local publicly-owned enterprises, COEs to urban collective enterprises, PIEs to individual or private enterprises and FIEs to foreign-invested enterprises.

3. Values refer to measured effects evaluated as wage differences in Yuan per hour.

4. Percentages refer to measured effects as a percentage of observed wage gap.

Concluding remarks

In this paper, we have analysed the determinants of wage differentials between five categories of enterprises (SOEs at central or provincial level, local publicly-owned enterprises, urban collective enterprises, private or individual enterprises and foreign-invested enterprises), in urban China in 1995. As discussed in the empirical literature on the labour market in China, the segmentation issue is crucial here since the dualism that characterises the emerging Chinese labour market entails potential sources of growing income inequality among urban workers.

We find strong evidence for segmentation on the Chinese labour market in 1995, segmentation being the major determinant of observed differences in average wages between enterprises' types. In particular, we find that SOEs at central or provincial level offer much higher wages than all other types of enterprises, including foreign-invested enterprises. Our results actually show a strong segmentation in favour of SOEs at central or provincial level against foreign-invested enterprises, average wages in foreign-invested enterprises meeting those in SOEs at central or provincial level only because workers in foreign-invested enterprises have on average better socio-economic characteristics and in particular a higher education attainment.

Different interpretations can be given to this last result. First, it could be argued that over-protected SOEs at central or provincial level provided above-market wages to their employees in 1995. This interpretation falls in the line of discussions on over-employment in SOEs and the slow pace at which the non-state sector is absorbing this excess labour. Indeed, since SOEs at central or provincial level were providing better payment than any other alternatives (not to mention non-monetary advantages, which could not be taken into account here), it comes at no surprise that the non-state sector faileds to drive workers out of SOEs.

Following this line of analysis, it can be expected that further reforms of the state sector undertaken since 1995 would have resulted in decreasing segmentation (market forces playing a greater role in wage determination) and increasing incentives for turning to the private sector.

A second line of interpretation is to analyse sources of hourly wage gap between SOEs at central or provincial level and foreign-invested enterprises in the light of broader socio-economic dimensions. Indeed, foreign-invested enterprises were offering lower hourly wage to their employees in 1995 but could in counterpart offer other non-income advantages. First, as discussed in Section 1, foreign-invested enterprises were offering higher total annual wages than any other type of enterprises, and we have shown that these higher wages were obtained at the cost of higher working hours, which is not possible in SOEs. It is quite likely that most male workers in foreign-invested enterprises are attracted by higher *total annual* wages rather than high hourly wages. On the contrary, our results in Section 5 show that women with children or elderly living at home would not choose to work in foreign-invested enterprises for this very reason. Moreover, foreign-invested enterprises usually offer better working conditions, be it for unskilled workers (sanitary and security conditions) or for skilled workers (higher working autonomy). In the light of these aspects, the wage gap between SOEs at central or provincial level and foreign-invested enterprises in 1995 can be partly explained as a working condition premium.

The temporal issue also needs to be addressed here. Indeed, in 1995, SOEs in China were starting to give alarming weaknesses[22] whereas foreign-invested enterprises were experiencing rapid growth. Choosing foreign-invested enterprises against SOEs can thus be considered as a middle-term investment. Indeed, even if leaving the state sector was risky and costly in terms of hourly wage as well as non-wage benefits such as housing or health care, it could be considered as

---

[22] According to the Third National Industrial Census of the PRC, in 1995 34% of SOEs were loss-making.

insurance against the collapse of the state sector. This would here correspond to a negative premium against SOEs due to middle-term uncertainty about the viability of a large number of SOEs.

Moreover, the choice of working in a specific type of enterprise is an individual as well as a household decision. In this work, we also found some signs of risk diversification behaviours at the household level, some household member taking to foreign-invested enterprises or private or individual enterprises while others stay in SOEs.

Lastly, as mentioned above, the empirical analysis provided in this paper suffers from a main drawback coming from the fact that it relies on only one specific year (1995). It is thus difficult to draw inferences for the most recent period since the labour market conditions have changed dramatically over the last decade, especially since the SOEs reforms were launched from 1997 onwards. Unfortunately, access to more recent quality data is still very much restricted.

References

Appleton S., J. Knight, L. Song, and Q. Xia, 2003, "Long Lasting Attraction? Impacts of Communist Party Membership on the Chinese Labour Market', *mimeo*.

Blinder A. S., 1973, "Wage Discrimination: Reduced Form and Structural Estimates", *Journal of Human Resources*, Fall, 8:436-455.

Bourguignon F., M. Fournier and M. Gurgand, 2003, "Selection Bias Correction Based on the Multinomial Logit Model", CREST working paper.

Dahl G. B., 2002, "Mobility and the Returns to Education: Testing a Roy Model with Multiple Markets", *Econometrica*, November, 70(6): 2367-2420.

Démurger S., 2000, *Economic Opening and Growth in China*, Development Centre Studies, OECD, Paris, March.

Dong X. and P. Bowles, 2002, "Segmentation and discrimination in China's emerging industrial labour market", *China Economic Review*, 13(2-3):170-196.

Fan C. C., 2001, "Migration and Labor Market Returns in Urban China: Results from a Recent Survey of Guangzhou", *Environment and Planning*, 33:479-508.

Fan C. C., 2002, "The Elite, the Natives, and the Outsiders: Migration and Labor Market Segmentation in Urban China", *Annals of the Association of American Geographers*, 92(1):103-124.

Fu Y. and S. Gabriel, 2000, "Location, Market Segmentation, and Returns to Human Capital: The Privatization of China's Labor Markets", Annual Meeting of the American Real Estate and Urban Economics Association, Boston.

Gustafsson B. and S. Li, 2000, "Economic transformation and the gender earnings gap in urban China", *Journal of Population Economics*, July, 13(2):305-329.

Howell J., 1997, "The Chinese economic miracle and urban workers", *European Journal of Development Research*, December, 9(2):148-175.

Johnson E.N. and G.C. Chow, 1997, "Rates of return to schooling in China", *Pacific Economic Review*, 2(2): 101-113.

Khan A. R., K. Griffin and C. Riskin, 2001, "Income Distribution in Urban China During the Period of Economic Reform and Globalization", in C. Riskin, R. Zhao and S. Li, eds., *China's Retreat from Equality – Income Distribution and Economic Transition*, M.E. Sharpe, London, England.

Knight J., L. Song, and H. Jia, 1999, "Chinese Rural Migrants in Urban Enterprises: Three Perspectives", in Sarah Cook and Margaret Maurer-Fazio eds. *The Workers' State Meets the Market: Labour in China's Transition*. London: Frank Cass.

Lee L.F., 1983, "Generalized Econometric Models with Selectivity", *Econometrica*, 51: 507-512.

Li H., 2003, "Economic transition and returns to education in China", *Economics of Education Review*, June, 22(3): 317-328.

Liu Z., 1998, "Earnings, education, and economic reforms in urban China", *Economic Development and Cultural Change*, 46(4): 697-725.

Maurer-Fazio M. and H. Dinh, 2002, "Differential rewards to, and contributions of, education in urban China's segmented labor markets", William Davidson Working Paper No. 508, June.

Maurer-Fazio M., 1999, "Earnings and education in China's transition to a market economy: survey evidence from 1989 and 1992", *China Economic Review*, 10: 17-40.

Meng X., 2002, "Are Rural Migrants Outsiders in Chinese Urban Enterprises? – An Alternative Interpretation for the Earnings Gap between Urban Workers and Rural Migrants", unpublished manuscript, Research School of Pacific and Asian Studies, Australian National University.

Meng X. and P. Miller, 1995, "Occupational Segregation and its Impact on Gender Wages Discrimination in China's Rural Industrial Sector", *Oxford Economic Papers* 47: 136-155.

Meng X. and J. Zhang, 2001, "Two-tier labour markets in Urban China: Occupational segregation and wage differentials between urban residents and rural migrants in Shanghai", *Journal of Comparative Economics*, 29: 485-504.

Mincer J., 1974, *Schooling, experience, and earnings*, New York: Columbia University Press for the National Bureau of Economic Research.

Oaxaca R., 1973, "Male-Female Wage Differentials in Urban Labor Markets", *International Economic review*, October, 14:693-709.

OECD, 2002, *China in the World Economy: The Domestic Policy Challenges*, Paris.

Park A., X. Song, J. Zhang and Y. Zhao, 2003, "The Growth of Wage Inequality in Urban China, 1988 to 1999", unpublished paper.

Psacharopoulos G., 1994, "Returns to investment in education: a global up-date", *World Development*, 22:1325-1343.

Putterman L., 1992, "Dualism and economic reform in China", *Economic Development and Cultural Change*, 40(3):467-93.

Qian J, 1996, *Gender Wage Differentials in Urban China in the 1990s*, PhD. Dissertation, State University of New York at Binghamton.

Riskin C., R. Zhao and S. Li., 2001, *China's Retreat from Equality – Income Distribution and Economic Transition*, M.E. Sharpe, London, England.

Rozelle S., X. Dong, L. Zhang and A. Mason, 2002, "Gender wage gaps in post-reform rural China", *Pacific Economic Review*, 7(1):157-179.

Sicular T. and Y. Zhao, 2002, "Earnings and labor mobility in rural China: Implications for China's WTO entry", *mimeo*.

Schmertmann C.P., 1994, "Selectivity Bias Correction Methods in Polychotomous Sample Selection Models", *Journal of Econometrics*, January-February, 60(1-2):101-132.

Zhang J. and Y. Zhao, 2002, "Economic returns to schooling in urban China, 1988-1999", *mimeo*.

Xu L. and H. Zou, 2000, "Explaining the changes of income distribution in China", *China Economic Review*, 11: 149-170.

Zhao Y., 2001, "Foreign direct investment and relative wages: The case of China", *China Economic Review*, Spring, 12(1): 40-57.

Zhao Y., 2002, "Earnings differentials between State and Non-State Enterprises in Urban China", *Pacific Economic Review*, 7(1):181-197.

Appendix 1 – Wage equation estimations for *PIEs* and *FIEs* with gender interaction

variables

	Dahl	
	PIEs	FIEs
Education		
Man	0.076	0.100
	1.04	3.58
Woman	0.110	0.071
	1.55	2.63
Experience		
Man	0.048	0.009
	0.49	0.30
Woman	0.014	0.063
	0.17	1.93
Experience^2		
Man	-0.000	0.000
	-0.07	0.27
Woman	-0.000	-0.001
	-0.05	-0.97
Communist	1.003	0.026
	1.11	0.11
Coast	0.765	0.348
	2.63	2 .42
Observations	107	144
Adjusted R^2	0.08	0.14

Appendix 2 – Decomposition results by gender

Table A2.1 – Decomposition of the wage differentials for women

Ownership		Average wage			Characteristics		Segmentation	
Base	Simulation				Effect		Effect	
(A)	(B)	Y_A	Y_B	$Y_A - Y_B$	Value	%	Value	%
CPSOEs	LSOEs	3.247	2.824	0.422	-0.199	*-47%*	0.621	*147%*
LSOEs	CPSOEs	2.824	3.247	-0.422	0.128	*-30%*	-0.551	*130%*
CPSOEs	COEs	3.247	2.26	0.979	-0.051	*-5%*	1.031	*105%*
COEs	CPSOEs	2.267	3.247	-0.979	0.047	*-5%*	-1.027	*105%*
CPSOEs	PIEs	3.247	1.716	1.531	-1.382	*-90%*	2.913	*190%*
PIEs	CPSOEs	1.716	3.247	-1.531	0.474	*-31%*	-2.005	*131%*
CPSOEs	FIEs	3.247	3.344	-0.097	-1.049	*1078%*	A0.952	*-978%*
FIEs	CPSOEs	3.344	3.247	0.097	0.534	*548%*	-0.436	*-448%*
LSOEs	COEs	2.824	2.267	0.557	0.197	*35%*	0.359	*65%*
COEs	LSOEs	2.267	2.824	-0.557	-0.095	*17%*	-0.462	*83%*
LSOEs	PIEs	2.824	1.716	1.109	-0.297	*-27%*	1.405	*127%*
PIEs	LSOEs	1.716	2.824	-1.109	0.353	*-32%*	-1.461	*132%*
LSOEs	FIEs	2.824	3.344	-0.520	-0.167	*32%*	-0.353	*68%*
FIEs	LSOEs	3.344	2.824	0.520	0.419	*81%*	0.101	*19%*
COEs	PIEs	2.267	1.716	0.552	-1.046	*-190%*	1.598	*290%*
PIEs	COEs	1.716	2.267	-0.552	0.257	*-47%*	-0.809	*147%*
COEs	FIEs	2.267	3.344	-1.076	-0.856	*80%*	-0.220	*20%*
FIEs	COEs	3.344	2.267	1.076	0.298	*28%*	0.779	*72%*
PIEs	FIEs	1.716	3.344	-1.628	0.036	*-2%*	-1.665	*102%*
FIEs	PIEs	3.344	1.716	1.628	-0.525	*-32%*	2.153	*132%*

Notes:　See Table 10.

Table A2.2 – Decomposition of the wage differentials for men

Ownership		Average wage			Characteristics		Segmentation	
Base	Simulation				Effect		Effect	
(A)	(B)	Y_A	Y_B	$Y_A - Y_B$	Value	%	Value	%
CPSOEs	LSOEs	3.633	3.194	0.439	-0.178	*-41%*	0.618	*141%*
LSOEs	CPSOEs	3.194	3.633	-0.439	0.191	*-43%*	-0.630	*143%*
CPSOEs	COEs	3.633	2.691	0.942	-0.233	*-25%*	1.175	*125%*
COEs	CPSOEs	2.691	3.633	-0.942	0.020	*-2%*	-0.963	*102%*
CPSOEs	PIEs	3.633	2.562	1.071	-1.306	*-122%*	2.377	*222%*
PIEs	CPSOEs	2.562	3.633	-1.071	0.779	*-73%*	-1.850	*173%*
CPSOEs	FIEs	3.633	3.794	-0.161	-0.668	*414%*	0.507	*-314%*
FIEs	CPSOEs	3.794	3.633	0.161	0.582	*361%*	-0.421	*-261%*
LSOEs	COEs	3.194	2.691	0.503	0.058	*12%*	0.444	*88%*
COEs	LSOEs	2.691	3.194	-0.503	-0.156	*31%*	-0.347	*69%*
LSOEs	PIEs	3.194	2.562	0.631	-0.775	*-123%*	1.406	*223%*
PIEs	LSOEs	2.562	3.194	-0.631	0.534	*-85%*	-1.165	*185%*
LSOEs	FIEs	3.194	3.794	-0.601	-0.451	*75%*	-0.150	*25%*
FIEs	LSOEs	3.794	3.194	0.601	0.425	*71%*	0.176	*29%*
COEs	PIEs	2.691	2.562	0.129	-1.015	*-789%*	1.143	*889%*
PIEs	COEs	2.562	2.691	-0.129	0.547	*-425%*	-0.676	*525%*
COEs	FIEs	2.691	3.794	-1.104	-0.506	*46%*	-0.598	*54%*
FIEs	COEs	3.794	2.691	1.104	0.218	*20%*	0.886	*80%*
PIEs	FIEs	2.562	3.794	-1.232	0.447	*-36%*	-1.679	*136%*
FIEs	PIEs	3.794	2.562	1.232	-1.175	*-95%*	2.408	*195%*

Notes: See Table 10.