

Wage Reforms in China During the 1990s

Linda Y. Yueh

*Department of Economics, University of Oxford
London School of Economics and Political Science*

In urban areas of China, economic reforms were intensely implemented after 1984. We focus on two primary aspects of the reforms in the 1990s, those pertaining to the labor market and to wages. Based on original interviews and two unique household data sets, we investigate the effects of the reforms. Our first finding is that the components of annual income have changed, reflecting fewer subsidies and more diverse sources of income (such as self-employment), over the period from 1995 to 1999. By 1999, the wage structure reflects less seniority-based pay, allows for more discretion in rewarding non-productive characteristics (gender and Communist Party membership, for example) and also permits more productivity-related pay (as evidenced by increased returns to human capital).

Keywords: Asia and China, employment, reform, wages.

JEL classification codes: O53, P23, J31, O10.

I. Introduction

Following the Cultural Revolution, China embarked on an economic reform program characterized by the Four Modernizations of agriculture, industry, national defense, and science and technology (see Riskin, 1987 and Chang, 1988).¹ At the Third Plenum of the Eleventh Central Committee in December 1978, the Chinese authorities resolved to make economic development a top priority. In urban areas, economic reforms were intensely implemented after 1984. Within the labor market, significant changes have occurred in the past two decades, including yielding more discretion to enterprises for wage-setting and permitting the retention of profits.

In this paper, we investigate two primary aspects of these reforms in urban areas, those pertaining to the labor market and to wages. Focusing on the significant reforms implemented in the 1990s, we analyze changes in the structure of

1. For overviews of China's economic history since 1978 until the 1980s, see Riskin (1987) and Chang (1988).

wages and the general urban labor market. The next two sections of this paper discuss the wide-ranging reforms that have taken place in urban China. These are based on personal interviews conducted in the Ministry of Labor and original policy documents. The section which follows presents an analysis of the structure of wages using two unique and representative household income and consumption surveys undertaken in urban areas in 1995 and 1999.

II. Labor Market Reforms

One of the foremost challenges currently facing China is the development of a labor market (see Knight and Song, 1999).² Before the 1980s, state labor agencies exercised a virtual monopoly over the allocation of urban labor (see Bian, 1994).³ Governmental planning, rather than the market, dictated the supply of and demand for labor. Allocations to enterprises were aimed at avoiding unemployment. Job assignments were made without much reference to the needs of enterprises or the characteristics of workers. The initial job assignment was crucial as the first job was typically the only job, the so-called 'iron rice bowl'.

When reforms started in the 1980s, the state monopoly of labor allocation was replaced by a somewhat more decentralized system. Central and local labor authorities continued to plan the labor requirements of state and large collective-owned enterprises and remained responsible for the placement of college graduates. However, labor exchanges began to be established for the registration of job vacancies, job placements, and training. By the 1990s, recruitment quotas for state enterprises were abolished and firms were largely allowed to choose their employees.

In the latter part of the 1990s, the attempts to resolve the problem of inefficiency of the state sector include downsizing and the layoff of workers by a quarter or more within four years (1997–2000). This was a drastic change from the official policy of full employment. In 1996, an estimated 5.25 million urban state workers were officially registered as unemployed. By the end of 1998, the official figure of laid-off workers was 15.7 million, which included 8.8 million *xiagang* workers (see Yang and Xin, 1999; Lee, 1998; NBS, 2000). *Xiagang* workers are laid-off workers who are officially registered as part of their enterprise or work unit, but do not go to work or receive a wage. They are registered as *xiagang* by their work unit and are officially entitled to minimum income support, although they often do not receive any such support in practice. This classification was newly created as part of the five year restructuring program of reforming inefficient state-owned enterprises (SOE). These laid-off workers epitomize the changes in the labor market from the mid to the late 1990s that are related to labor market and wage reforms. There are other forms of unemployment not captured by official statistics, including those who are classified as

2. For discussions of the changes in the labor market, see Knight and Song (1999).

3. An outline of the urban system can be found in Bian (1994).

youth waiting for work and even early retirement at unreasonable ages, such as in the mid 30s. Some are simply considered 'not in post' or *ligang*, defined as taking a long vacation without pay. These forms of lack of employment has caused the Chinese government to launch re-employment policies primarily geared toward developing labor-intensive sectors such as food services, transport, retail, and tourism. The success of these policies remains to be seen.

The Chinese urban labor market is, in short, characterized by many imperfections. It is underdeveloped in that there are few employment alternatives and workers still face some restrictions on moving from one city to another on account of the household registration system. These factors of limited alternative employment options and restricted mobility give rise to friction in the urban Chinese labor market. Increased competition with the move to a more market-oriented economy should be associated with more variation of wages with productivity if accompanied by an appropriate reform of the wage structure. We now turn to a discussion of the reforms of wages in urban China using original materials gleaned from sources in the Ministry of Labor (MOL) and personal interviews with Ministry officials.⁴

III. Reform of Wages

There were two waves of wage reforms prior to 1978.⁵ These wage reforms apply to state-owned and collectively-owned enterprises, but not to private or foreign-owned enterprises.⁶ The latter categories are free to set their wages within the confines of the Labor Law. We focus on the third wave, which consisted of three sets of reforms promulgated in 1985, 1992 and 1994 and the most recent overhaul of the wage structure implemented between 1996 and 2000.

In 1985, the MOL determined that the budget to be allocated for wages will be linked to the economic performance of SOE and collectively-owned enterprises.

4. The original materials incorporated in the paper include original interviews with a Ministry of Labor division chief and unpublished documents articulating Ministry policy concerning wage and labour market reforms. See interview and subsequent documents from M. Huang, Division Chief of the Division of Social Securities, the Ministry of Labor and Social Security. Interviewed on 1 September 2000 in Beijing, China.

5. The first of China's wage system reforms occurred in 1950, one year after the Communist Revolution. It was aimed at transforming the food supply system of wartime communism into a wage system. Under the reformed system, government and military officials and employees in the newly established SOE began to receive cash salaries and compensation according to job titles and ranks. The second wage reform in 1956 was part of an overall plan to nationalise the economy. The aim was to regulate wages for an expanded work force in both the state and collective sectors. Salary standards were patterned after the Soviet model and centrally regulated according to regions, occupations, industries, sectors (state or collective), level of management of enterprises (central or local) and characteristics of the workplace (technology and size, for example). The core of this wage system was a complex structure of salary standards for more than 300 occupational classifications.

6. Government agencies and non-profit institutions, the other large employers in the Chinese economy, are also subject to a different wage system.

It was to be measured by enterprise profitability or a combined indicator of economic returns (MOL, 2000).⁷ The indicators vary by region and reflect local economic conditions, such as unemployment, the consumer price index and regional growth. The goal is to provide profit-oriented incentives. Under the previous system, these enterprises turned over all profits and paid workers with wages redistributed by the state. Except for a small amount of bonus funds linked to limited above-quota output, there was little incentive to be profitable. With these reforms, however, wage budgets were linked to an enterprise's profitability and performance. Basic wages and profit quotas were projected from an enterprise's performance from the previous three years and they were allowed to retain, after taxes, above-quota profits for investment in plant capacity, employee welfare programs, 'floating' salaries (i.e. bonus-type, temporary salary increases), raises and bonuses. These incentives have appeared to stimulate profit-oriented behavior in state-owned enterprises and have been investigated (see Groves et al., 1995).⁸

In 1992, the State Council issued a circular stating that enterprises were permitted to set their internal wage structure within the confine of the overall wage budget established by the government. There were two methods available to enterprises. The first was that wages would be linked to enterprise performance. If the wage bill exceeded the governmental standard wage bill that would be implied by the aggregate positions established by the MOL, the enterprise must pay a Wage Adjustment Tax of 33% to the Department of Taxation.⁹ The second method is for the enterprise to propose a wage budget and then submit it for approval to the Ministries of Labor and Finance, which then consider the proposal in the context of the consumer price index and local wages. The primary difference is that if an enterprise chooses the latter method, it is not liable for the Wage Adjustment Tax. These policies are designed to ensure that profits accrue to the state, but also that profit-oriented incentives are maintained.¹⁰

Beginning in 1994–1995, enterprises that are publicly listed companies, that is, companies which have issued shares that are listed on one of the two stock exchanges in China (Shenzhen or Shanghai), were permitted to set their own wages subject to two standards (MOL, 2000). The first is that the growth rate of total wages must be lower than that of after-tax profitability and the second is that per capita wage growth is lower than the rate of growth of labor productivity.

7. MOL (2000). Mimeo on file with the author.

8. Groves, Hong, McMillan and Naughton (1995) find positive effects on productivity from introducing managerial incentives in a study of 769 SOE from 1980 to 1989.

9. The government's standard wage is not the same as the minimum wage, which for Beijing was 420–430 RMB per month in late 2000. The standard wage, for instance, was 800 RMB per month for an office worker and varies by occupation and region (Huang, 2000).

10. Interview and subsequent documents from M. Huang, Division Chief of the Division of Social Securities, the Ministry of Labor and Social Security. Interviewed on 1 September 2000 in Beijing, China.

In addition, the MOL suggested to enterprises that wages are set not only according to occupation and rank, but also based on skills and productivity. Of the estimated 100,000 SOE, approximately 40,000 have issued shares and set wages under this regime. Non-stock enterprises are still subject to the previous system.

Most recently, there was an overhaul which was part of the Ninth Five Year Plan (1996–2000). Previously, there had been six components of the wage in enterprises, including the basic wage, bonuses, benefits and subsidies, overtime wages, supplementary wages and an ‘other’ component, primarily based on hardship. These categories have been replaced by two components of wages, fixed (*guding*) and variable (*huo*). The fixed portion includes the basic wage, seniority wage, insurance (medical, unemployment and pensions) and a housing fund.¹¹ The variable portion includes bonuses, based on both individual productivity and enterprise profitability. Enterprises continue to pay for training and other in-kind compensation such as firm outings and gifts of daily goods. The standard workweek is 40 hours with 50% overtime pay on weekends and 300% overtime pay on national holidays, such as Lunar New Year, for hourly workers.

In summary, these reforms are intended to create a more market-oriented wage structure. The rate of compliance by enterprises to the reforms and new regulations is thought to be high (see Huang, 2000).

IV. The Structure of Wages in China

The above section provided details of the newest waves of reform that are not easily accessible to outside scholars and required interviews and fieldwork in China to obtain. This section follows with a two-part empirical analysis using unique household data sets, which are representative samples of urban China pertaining to 1995 and 1999, to investigate the impact of those reforms. The author participated in gathering the data for the 1999 survey, which was conducted by the National Bureau of Statistics (NBS) in conjunction with a team of Chinese and international scholars. Details are discussed in Riskin, Zhao and Li (2001) for the 1995 survey and will be presented in a similar volume for the 1999 survey; one of the forthcoming articles that provides an overview of the data is Knight and Yueh (2003).

Briefly, the households in both data sets are drawn from a sub-sample of the NBS annual household income and expenditure survey. Both are unique, representative urban surveys which include detailed information on wages and income for individuals. Eleven of the 30 provinces of China are included in the 1995 data set, while the 1999 urban survey covers six provinces and 13 cities. In 1999, the provinces are Beijing (chosen to represent the four cities that are

11. The system of allocated housing was largely abolished around 1998 and replaced with a housing fund. A deduction from an employee’s paycheque is paid into the fund and matched by the enterprise.

independently administered municipal districts), Liaoning (to represent the northeast), Henan (to represent the interior), Gansu (to represent the northwest), Jiangsu (to represent the coast) and Sichuan (to represent the southwest). The capital of each province is chosen as a city within the sampling frame – a total of three cities are chosen in Sichuan and Henan and two in each of the others except Beijing.¹² There are 6594 households and 21 697 individuals in the urban portion of the 1995 data set and 4557 persons with an average of 3.24 persons per household in the 1999 survey. Pertinent statistics on income and wages are given in the following section for both surveys.

Using these cross-sectional data sets, we investigate the effects of the major reforms on the urban wage structure of the 1990s by analyzing the components of annual income and the rewards to both productivity and non-productivity related characteristics in the two periods.

IV.1 The components of annual income

Table 1 provides a comparison of the components of income for 1995 and 1999 for the working-age urban population in China. In 1995, the mean income for the representative urban sample was 6033 *renminbi* (RMB). On average, annual income is 19% higher for men (6689 RMB) than for women (5413 RMB). Wages comprise about 80% of total income for both men and women. Bonuses are a substantial part of total annual income, constituting 13–14%, and were a significant component of earnings (approximately 17%). Subsidies are approximately 11% on average. Self-employed income is less than 1% of annual income, while other earned income constitutes approximately 6% with minimal gender differences. Property income is also a small portion of annual income, between 1–2%. Transfer income, on the other hand, which includes pensions and gifts, is approximately 6% of income. For women, however, it is 8% of total annual income, while it is merely 4% for men. As women have an earlier official retirement age than men, this disparity would have been reflected in the portion of income attributed to pensions.

Turning to the 1999 urban sample, mean income is 7267 RMB.¹³ As in 1995, there is a significant gender earnings gap. For working-aged men, mean income is 8574 RMB, while it is 6026 RMB for working-aged women. Table 1 shows that wages constitute the major share of annual income (over 70%). When we include all employment income, we find that work-related income (i.e. self-employed income and other employment income) comprises over 80% of total income for the representative urban sample. Wages are a surprising lower

12. The cities are Beijing, Shenyang and Jinzhou in Liaoning, Nanjing and Xuzhou in Jiangsu, Zhengzhou, Kaifeng and Pingdingshan in Henan, Chengdu, Zigong and Nanchong in Sichuan, and Lanzhou and Pingliang in Gansu.

13. The figures for 1999 are not inflation-adjusted, as the goal of this article is to analyze the components of the wage. Annual inflation over this period has been low, around 2%.

Table 1 Mean annual income and components in RMB for the working-aged urban population, 1995 and 1999: % of total income

| <i>Category of Income†</i> | <i>Men in the 1995 sample (n = 6438)</i> | <i>Women in the 1995 sample (n = 6814)</i> | <i>Total for the 1995 sample (n = 13 252)</i> | <i>Men in the 1999 sample (n = 1347)</i> | <i>Women in the 1999 sample (n = 1415)</i> | <i>Total for the 1999 sample (n = 2763)</i> |
|-----------------------------|--|--|---|--|--|---|
| Annual income | 6689 (100%) | 5413 (100%) | 6033 (100%) | 8574 (100%) | 6026 (100%) | 7267 (100%) |
| Wages | 5556 (83.06%) | 4277 (79.01%) | 4898 (81.19%) | 6375 (74.35%) | 4119 (68.35%) | 5218 (71.81%) |
| Bonus | 941 (14.07%) | 727 (13.43%) | 830 (13.76%) | 522 (6.08%) | 292 (4.85%) | 404 (5.56%) |
| Subsidy | 999 (14.93%) | 814 (15.04%) | 904 (14.98%) | 317 (3.69%) | 187 (3.10%) | 250 (3.44%) |
| Laid-off subsidy | – | – | – | 76 (0.88%) | 89 (1.48%) | 83 (1.14%) |
| Other income from work unit | 370 (5.53%) | 300 (5.54%) | 334 (5.52%) | 110 (1.28%) | 103 (1.72%) | 107 (1.47%) |
| Self-employed income | 40 (0.60%) | 31 (0.57%) | 36 (0.60%) | 668 (7.8%) | 176 (2.93%) | 416 (5.73%) |
| Other employee income | 51 (0.76%) | 32 (0.59%) | 41 (0.68%) | 58 (0.68%) | 40 (0.66%) | 49 (0.67%) |
| Other income from work | 137 (2.05%) | 79 (1.46%) | 107 (1.77%) | 276 (3.21%) | 210 (3.48%) | 242 (3.33%) |
| Second job income | 29 (0.43%) | 11 (0.20%) | 20 (0.33%) | 44 (0.51%) | 19 (0.31%) | 31 (0.42%) |
| Property income | 111 (1.66%) | 77 (1.42%) | 94 (1.56%) | 121 (1.41%) | 93 (1.54%) | 107 (1.47%) |

Table 1 (Cont'd)

| <i>Category of Income†</i> | <i>Men in the 1995 sample (n = 6438)</i> | <i>Women in the 1995 sample (n = 6814)</i> | <i>Total for the 1995 sample (n = 13 252)</i> | <i>Men in the 1999 sample (n = 1347)</i> | <i>Women in the 1999 sample (n = 1415)</i> | <i>Total for the 1999 sample (n = 2763)</i> |
|--|--|--|---|--|--|---|
| Transfer income‡ | 258 (3.86%) | 448 (8.28%) | 356 (5.90%) | 284 (3.32%) | 865 (14.36%) | 582 (8.00%) |
| Pensions§ | 65 (0.97%) | 280 (5.17%) | 176 (2.92%) | 176 (2.05%) | 690 (11.46%) | 439 (6.05%) |
| Gifts received | 96 (1.44%) | 64 (1.18%) | 80 (1.33%) | 72 (0.84%) | 77 (1.27%) | 75 (1.03%) |
| Asset sales | 13 (0.19%) | 4 (0.07%) | 8 (0.13%) | 2 (0.02%) | 0.16 (0.00%) | 0.95 (0.01%) |
| Hardship subsidy (1995)/ Unemployment benefits (1999) | 0.16 (0.00%) | 0.11 (0.00%) | 0.13 (0.00%) | 2 (0.03%) | 14 (0.23%) | 8 (0.11%) |
| Income in kind | 96 (1.44%) | 70 (1.29%) | 83 (1.38%) | 17 (0.20%) | 11 (0.17%) | 14 (0.19%) |

Notes: † The selected components do not sum to 100%, as not all components are included and some are sub-components. It is also the case that those who take a pension are not the same individuals who earned a wage, for instance, which would also cause the percentages of the components of income to not add up vertically to 100%.

‡ Transfer income includes pensions, price subsidy, support for the elderly, child support, income from gifts, survey income, asset sales, unemployment benefits, minimum living benefits, and other hardship subsidies. We show the largest categories in the table.

§ There is a notable gender difference in pensions as we include women who are retired at the official age of 54, in an attempt to maintain comparability with men who have an official retirement age of 59.

Sources: Urban Household Survey, 1995 and 1999.

percentage than in 1995, leading to the conclusion that there is more secondary income in 1999, as total earned income is similar. We know that there is indeed more unemployment and *xiagang* in the population which would be reflected in less earned income from the primary job. There is more self-employment in 1999; the mean value of that income is about 5% of total annual income. There is a similar amount of transfer income for men in 1999 as compared with 1995, but for women there is much more over this period. As early retirement is a popular way of downsizing SOE, it is perhaps expected that women are expected to retire earlier than the official retirement age and thus we see more pension income for them in 1999, relative to 1995, and a higher mean transfer income as a result.

On the whole, the components of income changed considerably between 1995 and 1999. Although earned income still constitutes nearly 80% of annual income in 1999, there are more diverse sources of earnings, such as self-employment, when compared with 1995. Moreover, surprisingly, bonuses are a smaller portion of total income in 1999, as are subsidies and income in-kind. We next turn to the determinants of income for these two years in an attempt to better understand the changes in the urban wage structure.

IV.2 The determinants of annual earned income

We estimate earnings functions (alternatively termed earned income or income) for the two samples first using ordinary least squares (OLS). The logarithm form of annual earned income gives the following expression for the i^{th} individual:

$$\ln w_i = \alpha_0 + \alpha_1 Z_i + \alpha_2 X_i + \alpha_3 D_i + \varepsilon_i, \quad (1)$$

where Z_i is a vector of personal or non-productive characteristics (such as gender and age), X_i is a vector of productive characteristics (including years of education), D_i consists of dummy variables designed to capture regional variations within urban China, and ε_i is the error term.

Our focus is on wages, so there is a potential for sample selection in which we do not observe those individuals who did not work for pay. To correct for sample selection in the usual way, those who report annual income but no earned income are excluded from the estimation (see Heckman, 1979). A probit estimation accompanies the earnings function by predicting entry into wage employment using a relevant exclusion restriction. Correspondingly, the income function is now found by using maximum likelihood estimation (MLE) and given by

$$\ln w_i = \alpha_0 + \alpha_1 Z_i + \alpha_2 X_i + \alpha_3 D_i + \alpha_4 \lambda_i + \varepsilon_i, \quad (2)$$

where λ is the inverse Mills ratio designed to correct for selectivity bias in the samples. A significant coefficient on the lambda term indicates non-random selection into wage employment in the relevant sample. A final econometric issue is that robust standard errors that are adjusted for clustering at the household

level are computed. This is to address the presence of heteroskedasticity and the use of multiple individual observations from a household.

The results of these estimations are reported in Tables 2 and 3. Both tables report results for the two cross-sections of data using non-selection corrected OLS and selection-corrected MLE. As noted, the latter corrects for inconsistency introduced by sample selection bias while both include robust standard errors. The probit estimations in the first column render the predictors of entry into wage employment, including the significance of the exclusion restriction, and correspond to the MLE results in the second column. The final column presents the OLS results for comparisons of robustness.

Table 2 shows the determinants of earned income for 1995 and Table 3 reports the same for 1999. We find that there are similarities in the returns to observable characteristics that determine earnings in urban China for these two years. As there is sample selection in the sample (indicated by the significant coefficients on the inverse Mills ratios in both estimations), we interpret the MLE regressions. The variables included in the estimations are observable personal and productive characteristics and control variables for regional/city effects. The specifications and effects of the control variables are standard and are as follows. Under personal characteristics, we include gender as a dummy variable in the usual way, continuous variables of years of age and age squared

Table 2 The determinants of earned income for all employed individuals in urban China, 1995

| <i>Dependent variable: Log of annual earned income†</i> | <i>Probit</i> | <i>Coefficient (t-statistic) Corrected MLE</i> | <i>Uncorrected OLS</i> | <i>Mean value or percentage (SD)</i> |
|---|----------------------|--|----------------------------|--|
| Intercept‡ | 1.0259 (1.185)§ | 5.9030 (42.611)*** | 6.3440 (45.457)*** | |
| Personal characteristics: | | | | |
| Male | 0.0998 (1.024) | 0.1331 (13.350)*** | 0.1304 (13.088)*** | 0.4858 (0.4998) |
| Age | 0.0488 (1.156) | 0.1050 (16.052)*** | 0.0818 (12.911)*** | 37.7866 (9.6625) |
| Age squared | -0.0008 (-1.536) | -0.0014 (-17.549)*** | -0.0011 (-14.556)*** | 1521.184 (720.6569) |
| Communist Party member | 4.6682 (-) | 0.1004 (8.223)*** | 0.1037 (8.472)*** | 0.2123 (0.4090) |
| Productive characteristics: | | | | |
| Years of education | 0.0302 (1.343) | 0.0437 (15.579)*** | 0.0424 (15.184)*** | 11.1290 (2.6608) |
| Years of employment experience | 0.0287 (2.825)*** | 0.0200 (10.910)*** | 0.0219 (11.825)*** | 19.0589 (9.3082) |
| Occupation | 0.0463 (2.044)** | -0.0280 (-6.308)*** | -0.0293 (-6.615)*** | 5.8788 (2.0064) |

Table 2 (Cont'd)

| <i>Dependent variable:</i> <i>Log of annual earned income</i> † | <i>Probit</i> | <i>Coefficient</i> <i>(t-statistic)</i> <i>Corrected</i> <i>MLE</i> | <i>Uncorrected</i> <i>OLS</i> | <i>Mean value</i> <i>or percentage</i> <i>(SD)</i> |
|--|------------------------|--|----------------------------------|--|
| Exclusion restriction: | | | | |
| Have children in the household¶ | -0.6602 (-4.231)*** | - | - | 0.1953 (0.3964) |
| Provinces: | | | | |
| Beijing | 0.2520 (0.633) | 0.2614 (7.645)*** | 0.2553 (7.503)*** | 0.0233 (0.1509) |
| Shanxi | 4.5034 (-) | 0.2621 (9.782)*** | 0.2626 (9.778)*** | 0.0279 (0.1648) |
| Liaoning | 0.0706 (0.245) | 0.1962 (5.393)*** | 0.1970 (5.411)*** | 0.0311 (0.1736) |
| Anhui | -0.2429 (-1.029) | -0.1414 (-3.747)*** | -0.1420 (-3.782)*** | 0.0244 (0.1544) |
| Henan | -0.1305 (-0.460) | -0.3649 (-9.939)*** | -0.3665 (-9.949)*** | 0.0271 (0.1624) |
| Hubei | -0.2445 (-1.186) | -0.0544 (-2.289)** | -0.0522 (-2.193)** | 0.0392 (0.1942) |
| Guangdong | 4.4828 (-) | 0.0531 (1.697)* | 0.0586 (1.877)* | 0.0226 (0.1485) |
| Sichuan | -0.2337 (-1.208) | -0.2060 (-6.004)*** | -0.2071 (-6.033)*** | 0.0384 (0.1922) |
| Yunnan | 4.4686 (-) | 0.1381 (4.910)*** | 0.1389 (4.919)*** | 0.0285 (0.1665) |
| Gansu | 4.4744 (-) | 0.1925 (5.880)*** | 0.1946 (5.974)*** | 0.0161 (0.1261) |
| Inverse Mills ratio | - | -0.0269 (-2.676)*** | - | 0.0151 (0.0253) |
| R^2 | - | - | 0.2355 | |
| Pseudo R^2 | 0.1840 | - | - | |
| χ^2 (18) | 163.89*** | - | - | |
| Wald χ^2 (17)†† | - | 2933.07*** | - | |
| F(17, 5976) | - | - | 171.43*** | |
| Number of observations | 12016 | 11943 | 11943 | |

Notes: † Mean value of logarithm of annual earned income is 8.3313 with a standard deviation of 0.5074.

‡ Omitted dummy variables are: female, non-Communist Party members and Jiangsu province.

§ Heteroskedasticity-consistent robust standard errors adjusted for clustering at the household level are computed.

¶ The exclusion restriction of the presence of any children under the age of 18 was also tested, and the presence of a young child in the household under 13 performed better.

†† Wald χ^2 values are computed because of the lack of the assumption of homoskedasticity in the error terms.

*** Denotes statistical significance at the 1% level, ** at the 5% level, and * at the 10% level.

Source: Urban Household Survey, 1995.

Table 3 The determinants of earned income for all employed individuals in urban China, 1999

| <i>Dependent variable: Log of annual earned income†</i> | <i>Probit</i> | <i>Coefficient (t-statistic) Corrected MLE</i> | <i>Uncorrected OLS</i> | <i>Mean value or percentage (SD)</i> |
|---|-----------------------|--|----------------------------|--|
| Intercept‡ | 1.7579 (1.375)§ | 7.4042 (21.420)*** | 7.2676 (21.347)*** | |
| Personal characteristics:¶ | | | | |
| Gender | -0.2618 (-2.002)** | -0.1977 (-8.060)*** | -0.2094 (-8.670)*** | 0.5121 (0.4999) |
| Age | -0.0766 (-1.112) | 0.0328 (2.077)** | 0.0354 (2.267)*** | 38.3278 (9.9573) |
| Age squared | 0.0013 (1.378) | -0.0005 (-2.459)** | -0.0005 (-2.628)*** | 1568.131 (747.7903) |
| Communist Party member | 0.3984 (1.467) | 0.1577 (4.858)*** | 0.1645 (5.086)*** | 0.1992 (0.3995) |
| Productive characteristics: | | | | |
| Years of education | 0.1069 (3.755)*** | 0.0559 (10.712)*** | 0.1645 (11.672)*** | 10.8925 (2.7900) |
| Years of employment experience | 0.0302 (2.013)** | 0.0130 (3.989)*** | 0.0143 (4.494)*** | 18.8740 (9.3267) |
| Ownership sector of employer | 0.1261 (2.499)** | 0.0891 (5.763)*** | 0.0960 (6.405)*** | 1.9216 (1.1196) |
| Exclusion restriction: | | | | |
| Have children in the household†† | 0.3771 (2.521)** | - | - | 0.3231 (0.4677) |
| Cities: | | | | |
| Beijing | -0.1617 (-0.483) | 0.5762 (8.369)*** | 0.5691 (8.405)*** | 0.1258 (0.3306) |
| Shenyang | 0.1089 (0.294) | 0.0972 (1.411) | 0.0978 (1.444) | 0.1143 (0.3183) |
| Jinzhou | -0.2486 (-0.728) | 0.0477 (0.600) | 0.0362 (0.473) | 0.0771 (0.2667) |
| Nanjing | 0.3701 (0.783) | 0.4902 (7.782)*** | 0.4934 (7.936)*** | 0.0886 (0.2843) |
| Xuzhou | -0.1525 (-0.423) | 0.2840 (4.043)*** | 0.2783 (4.004)*** | 0.0655 (0.2474) |
| Zhengzhou | -0.7835 (-2.505)** | 0.0746 (0.893) | 0.0088 (0.108) | 0.0622 (0.2416) |
| Kaifeng | -0.2685 (-0.781) | -0.2655 (-2.955)*** | -0.2765 (-3.109)*** | 0.0669 (0.2499) |
| Pingdingshan | -0.1197 (-0.338) | 0.2537 (3.299)*** | 0.2505 (3.311)*** | 0.0666 (0.2493) |
| Chengdu | -0.1367 (-0.381) | 0.0950 (1.256) | 0.0868 (1.170) | 0.0582 (0.2343) |
| Zigong | -0.0666 (-0.183) | -0.1755 (-2.174)** | -0.1800 (-2.236)** | 0.0677 (0.2512) |
| Nanchong | 0.1284 (0.328) | 0.0797 (0.988) | 0.0832 (1.047) | 0.0666 (0.2493) |

Table 3 (Cont'd)

| <i>Dependent variable: Log of annual earned income</i> † | <i>Probit</i> | <i>Coefficient (t-statistic) Corrected MLE</i> | <i>Uncorrected OLS</i> | <i>Mean value or percentage (SD)</i> |
|--|----------------------|--|----------------------------|--|
| Lanzhou | -0.1814 (-0.0529) | 0.1267 (1.430) | 0.1144 (1.304) | 0.0734 (0.2609) |
| Inverse Mills' ratio | - | -0.5010 (-9.2868)*** | - | 0.0587 (0.0655) |
| R^2 | - | - | 0.2942 | |
| Pseudo R^2 | 0.1741 | - | - | |
| X^2 (21) | 98.82*** | - | - | |
| Wald X^2 (20)‡‡ | - | 740.91*** | - | |
| F(20, 1239) | - | - | 42.63*** | |
| Number of observations | 2383 | 2322 | 2322 | |

Notes: † Mean value of the logarithm of annual income is 8.8468 with a standard deviation of 0.6840.

‡ Omitted dummy variables are: male, non-Communist Party members, urban collective sector, and Pingliang.

§ Heteroskedasticity-consistent robust standard errors are computed. We have also adjusted for clustering at the household level in the standard errors.

¶ Not all variables are reported for brevity.

†† The exclusion restriction of the presence of any children under the age of 18 was also tested, and the presence of a young child in the household under 13 performed better.

‡‡ Wald χ^2 values are computed because of the lack of the assumption of homoskedasticity in the error terms.

*** Denotes statistical significance at the 1% level, ** at the 5% level, and * at the 10% level.

Source: Urban Household Survey, 1999.

in anticipation of expected nonlinear effects, and a dummy variable indicating membership in the Communist Party which is thought to have effects on earnings (see Knight and Song, 1991). The productive characteristics estimated are years of education, years of employment experience, ownership sector of employer and occupation. Years of education indicate years of education completed as does years of employment and are continuous variables. Ownership sector of employer is ranked by mean income, where the lowest value is associated with SOE and urban collectives is the omitted category. We use the rank variable rather than dummy variables for each type of work unit sector in order to control for the effects of work unit sector and not to investigate differences among work unit sectors. The occupation term is also ranked starting with professionals to unskilled labor. Controls for provincial and city effects are also included. The exclusion restriction to address the selectivity issue is a dummy variable which equals one if there are children in the household. This is likewise a standard variable that performs well in capturing the effects of having child care obligations that can affect labor force participation (see Gronau 1974).

We first find that, promisingly, the returns to education increased slightly during this period. A year of education is associated with a 4% increase in

income in 1995, but generates a 5.5% premium in 1999. This is good news for a developing labor market in which it is hoped that wages are linked to human capital, captured in years of education attained.

The income premium associated with age declined from approximately 10% to 3% from 1995 to 1999, with not much change in the age squared term. This suggests that the administered wage structure with salaries highly linked to age may be beginning to experience some erosion. The return to employment experience declined over this period, leading to the conclusion that the 2% income premium reaped in 1995 is now close to 1% per year of employment experience in 1999. As most workers in the samples have held only one job, employment experience is largely synonymous with tenure¹⁴ and suggests a decrease in seniority pay rewarded for tenure, which is consistent with the interpretation put forward for the decline in rates of return to age.

The results also indicate that the wage profile is flatter in 1999 than in 1995. Calculated from the coefficients on the age and age squared variables for each set of estimations, the approximate peak wage of annual earnings is at 47 or 48 years of age in 1995, while it is about 33 years of age in 1999.¹⁵ This provides further support for the interpretation that wage reforms over this period decoupled the link between age and seniority pay in favor of more reward at earlier periods in a worker's career if warranted, previously prevented by administrative scales.

Finally, regarding the important characteristics of employment, we find that occupation and the ownership sector are both significant. The importance of occupation in the 1995 estimation centers on the distinctions between manual and non-manual workers. We introduce this variable as a control in 1995 and find that manual workers do indeed earn less income when compared with non-manual workers. In 1999, the distinction of ownership of the employer is a more prominent issue leading to our introduction of this control variable. Not surprisingly, there is a positive wage premium associated with employment in private enterprises.

Two important characteristics in the urban labor market which are not related to productivity but are significant indicators of the wage structure are gender and Communist Party membership. The coefficients on the gender dummy variables unambiguously indicate that the gender wage gap increased in 1999 when compared with 1995. Table 2 shows that the coefficient on the male gender dummy variable is 0.1331, which suggests an income premium for being male, whereas Table 3 shows a larger negative coefficient on the female gender dummy variable of -0.1977 . The disparity in income for men and women has grown from 14% to 18% over this four year period. This is disturbing, as earned income was largely (although not completely) equalized in the administered labor system. With increasing discretion over pay by management, there seems to be an increase in discriminatory pay on the basis of gender.

14. See Knight and Yueh (2003) for an examination of mobility in the urban Chinese labor market.

15. This was a useful point identified by an anonymous referee.

A final variable of interest is Communist Party membership. The income premium granted from being a Party member increased from 11% to 17% between 1995 and 1999. This is initially surprising, but may indeed be consistent with a labor market in development. The increased premium suggests that informal associations may be important in a labor market moving away from an administered structure towards one in which managers exercise more discretion in paying wages. The better one's informal connections, as proxied by Communist Party membership, the more reward in terms of income. There are many other interpretations of this result, including the predominance of Party members in exercising pre-eminence in budding private enterprises and otherwise translating their membership into economic advantage.

Finally, the disparities among provinces remain. Individuals in Beijing continue to enjoy an income premium that is higher than any other area. Poorer areas, such as Shenyang and Liaoning generally, hard struck by the restructuring of SOE, fared badly during this period.

A final note on labor force participation from Tables 2 and 3 is that being female decreases the chances of entering into wage employment in 1999, while there was no gender difference evident in 1995. This is a significant finding for a labor force that has been characterized by high participation by women (approximately 83% in 1995 versus 68% in 1999). Consistent with our earlier conclusions from the earnings functions, years of education are significantly associated with better chances of being employed in 1999 while there was no effect in 1995. This provides further support that possessing human capital improves both earnings and the chances of employment in a more market-oriented labor market. Years of employment experience continue to be important in selection into wage employment in 1999, as in 1995.

V. Conclusion

The structure of wages in China has changed between 1995 and 1999, in part reflecting the downturn in the urban Chinese economy and in part due to the wage reforms implemented in the late 1980s and 1990s. Real wages grew over this period, but the component of annual income attributable to wages has decreased, as has the amount of subsidies from the government. These findings indicate that there is more diversification in economic activity in urban China, while the State has cut back on the amount of social securities typically provided in an administered labor system. Earned income constitutes a similar proportion of total annual income over this period, but there is more income from self-employment and other sources of earnings from labor (not property) in 1999 than in 1995.

We further explore this question by examining the determinants of income for the urban population in two national cross-sectional data sets pertaining to 1995 and 1999. The gender income gap increased significantly over this period, as did the disparity in income between Communist Party members and non-Party

members. Both are disturbing developments for a labor market that is becoming more market-oriented. On the other hand, there is some evidence from the lower returns to age and tenure that the wage structure may be less linked to age and seniority pay, increasing the flexibility of the system. This is consistent with the intent of the series of wage reforms. Finally, human capital, in the form of years of education, is increasingly rewarded in urban China. This is perhaps the most promising of the discoveries for an urban labor market that has undergone reform to increase efficiency and reward productivity.

There remain many restrictions on labor mobility and imperfections in the urban labor market, which are borne out in the continuing regional disparities in income within urban China. Our discussion of the advent of reforms and the findings concerning the new wage structures shed some light into the degree of change in China in 1995 and 1999. Wages in China remain largely administered, with the aim of egalitarianism intact. However, the urban labor market is undergoing reform and the wage structure is becoming more reflective of labor productivity. There are signs that China is experiencing the increased efficiency of more productivity-related wages, but also the deficiencies of permitting discretion in pay.

References

- Bian, Y., 1994, *Work and Inequality in Urban China*. State University of New York, Albany, NY.
- Chang, D. W., 1988, *China Under Deng Xiaoping*. Macmillan Press, London.
- Gronau, R., 1974, Wage Comparisons: A Selectivity Bias. *Journal of Political Economy*, **82**, pp. 1119–43.
- Groves, T., Y. Hong, J. McMillan and B. Naughton, 1995, China's Evolving Managerial Market. *Journal of Political Economy*, **103**, pp. 873–92.
- Heckman, J. J., 1979, Sample Selection Bias as a Specification Error. *Econometrica*, **47**, pp. 153–62.
- Huang, M. Division Chief of the Division of Social Securities, Ministry of Labor and Social Security. Interviewed on 1 September 2000 in Beijing, China.
- Knight, J. and L. Song, 1991, The Determinants of Urban Income Inequality in China. *Oxford Bulletin of Economics and Statistics*, **53**, 123–54.
- Knight, J. and L. Song, 1999, *The Rural-Urban Divide: Economic Disparities and Interactions in China*. Oxford University Press, Oxford.
- Knight, J. and L. Y. Yueh, 2003, Job Mobility of Residents and Migrants in Urban China. Department of Economics Discussion Paper No. 163. University of Oxford, Oxford.
- Lee, C. K., 1998, *Gender and the South China Miracle: Two Worlds of Factory Women*. University of California Press, Berkeley, CA.
- Ministry of Labor and Social Security (MOL), 2000. Overview of the Current Situation of Enterprise Wage Structure in China (Mimeo). Ministry of Labor and Social Security, Beijing.
- National Bureau of Statistics (NBS), 2000, *China Labour Statistical Yearbook 2000*. China Statistics Press, Beijing (in Chinese).
- Riskin, C., 1987, *China's Political Economy*. Oxford University Press, Oxford.
- Riskin, C., R. Zhao and S. Li (eds), 2001, *Inequality in Retreat: Essays on the Changing Distribution of Income in China, 1988 to 1995*. Routledge, London.
- Yang, Y. and X. Xin, 1999, A Report on Laid-Offs and Re-Employment. In: *1999 Analyses and Forecasts Regarding Chinese Society* (eds Ru, X., S. Y. Liu and T. L. Dan). Sociological Literature Publishing House, Beijing (in Chinese).