



Gender Wage Gaps in Post-Reform Rural China

Scott Rozelle
Xiao-Yuan Dong
Linxiu Zhang
Andrew Mason

May 2002
The World Bank
Development Research Group/
Poverty Reduction and Economic Management
Network

Policy Research Report on Gender and Development

Over the last several decades, gender issues have attained increased prominence in the debates over development policy. There is a growing body of evidence and experience linking gender awareness in policy and projects to equitable, efficient, and sustainable outcomes in development. However, these links are still not widely understood nor have these lessons been fully integrated by donors or national policy makers.

In mid 1998, work began on the Policy Research Report (PRR) on Gender and Development. The objectives of the report will be to strengthen the analytical and empirical underpinnings of these links and, in doing so, to clarify the value added of bringing a gender perspective to the analysis and design of development policies and projects.

In pursuit of these objectives, the PRR will draw on interdisciplinary perspectives, from research and project and policy experience. The report will incorporate extensive consultation with

Bank staff, researchers and academics outside the Bank, other donor agencies, and groups from civil society. In addition to the consultation process, a series of background papers on selected topics has been commissioned. These papers have been selected to fill some of the gaps in the existing literature as well as to augment knowledge in selected areas.

The Policy Research Report on Gender and Development Working Paper Series is intended to encourage early discussion of the findings of these papers in advance of the expected publication of the PRR. An objective of the series is to get the findings out quickly, even if the presentation is less than fully polished. The papers are preliminary and carry the names of the authors and should be cited accordingly.

The findings, interpretations, and conclusions are the author's own and do not necessarily reflect the view of the World Bank, its Board of Directors, or any of its member countries.

This paper is part of a series of papers on selected topics commissioned for the forthcoming Policy Research Report on Gender and Development. The PRR is being carried out by Elizabeth King and Andrew Mason and co-sponsored by the World Bank's Development Economics Research Group and the Gender and Development Group of the Poverty Reduction and Economic Management Network. Comments are welcome and should be sent directly to the author(s) at: rozelle@primal.ucdavis.edu, dong@uwinnipeg.ca, IsnarGlobalAssociates@cgiar.org, amason@worldbank.org. Copies can be found online at <http://www.worldbank.org/gender/prr>. For paper copies, please send your request to Gender_PRR@worldbank.org.

Gender Wage Gaps in Post-Reform Rural China

1. Introduction

In the Mao era, the employment status of women in China rose from one of the lowest in the world to one in which equality between men and women reached a level matched by few developing countries (Croll, 1995). Before the 1950s, women in China suffered from a tradition of Confucian ideology. Subordinate to men and destined to serve others, women had access to few formal employment opportunities and those that did suffered from wage and work standard discrimination. Under Socialism, leaders instituted policies designed to provide equal pay for equal work. Female work participation in urban areas reached more than 90 percent prior to the reforms (Croll, 1995) and their sense of entitlement to their work and equal pay was high (Loscoco and Bose, 1998). Although wage discrepancies still existed in rural areas and the opportunities to work off the farm were limited by policy (Chan, Madsen, and Unger, 1992), the wage gaps in agricultural jobs were small relative to other countries in the world.

Given the high profile of women's rights in China, it is unsurprising that since the onset of the reforms in the late 1970s, social scientists have followed the plight of women's work and wages—although the interest has not translated into consensus. Researchers disagree about how the reforms should affect the status of women (Maurer-Fazio and Hughes, 1999). As the state retreats from its position of dominance, the leadership should be expected to become less influential and less able and willing to enforce its ideological stance on gender equality. Becker (1971), however, suggests that rising competition in factor and product markets (that have arisen with the reforms--Naughton, 1995) should

lessen the scope for employers to discriminate against disadvantaged workers, such as women.

Tests of the ‘ideology’ versus ‘market force’ hypothesis have been used to analyze how the reforms have affected gender wage inequality, but the results have been controversial. Some authors find that the wage discrimination was less prevalent in more market-oriented enterprises and suggest that market liberalization will improve women’s economic position (Meng 1998, Liu, Meng, and Zhang 2000)¹. In contrast, other researchers present evidence indicating that the reform process has worked to women’s disadvantage. Maurer-Fazio and Hughes (1999) find that gender wage gaps were lower in the state sector than non-state sectors. Maurer-Fazio, Rawski, and Zhang (1999) report that the ratio of women’s to men’s wages in the urban sector declined during 1988-1994. Gustafsson and Li (2000) find that the degree of wage discrimination increased from 1988 to 1995.

In this paper, we examine the impact of market reforms on gender earnings gaps in the rural economy using two cross-sections of data taken from 230 villages located in 8 provinces for 1988 and 1995. We focus on two particular points. First, in the spirit of the work of others, we seek to measure the gender wage gap and the extent to which the gap is attributable to wage discrimination against women. Second, and perhaps more importantly, we are interested in whether the wage gap has grown or not during the reform. To examine the change in wage gap we not only use traditional discrimination analysis, we also

¹ Dong and Bowles (2000) find a similar result when comparing the gender wage gap between public enterprises and foreign-invested firms (FIFs), but they attribute the lower degree of wage discrimination against women in FIFs to their discriminatory recruitment practice against older, married women with children rather than to the operation of market forces.

econometrically test for the statistical significance of the gender wage gap, its rise over time, and seek to measure the impact of competition on the gap.

To meet our objectives, the rest of the paper is organized as follows. We first describe our data and variables used in the gender wage gap analysis. Next, we examine the record of wages. The following section then uses several methods to measure the wage gap and assess how the market reforms have affected it. Our main findings are that the raw gender wage gap was sizeable and dominated by the unexplained part (that is the part attributed to discrimination). We also show that the raw wage gap has widened over time, but the rise of gender wage inequality was largely attributable to rising wage differentials between industries rather than growing wage discrimination. We do not find evidence that the reform policies and market competition led to any measurable increase or decrease in wage discrimination during the period of investigation. We conclude the paper in the final section.

2. Data and Variables

Our study primarily relies on a data set collected in 1996 from a sample of 230 villages in 8 provinces². The fieldwork team included Zhang and Rozelle and fifteen graduate students and research fellows from Chinese and North American educational institutions. The data were collected using a survey instrument in which we asked

² The sample villages were selected randomly on the basis of a stratified random sampling procedure. The eight provinces (Zhejiang, Shandong, Hubei, Sichuan, Yunnan, Shaanxi, Liaoning, and Hebei) were randomly selected from each of China's traditional geographic regions. Eight counties were selected from each province, two from each quartile of a list of counties arranged in descending order of gross value of industrial output (GVIO). GVIO was used on the basis of the conclusions of Rozelle (1996) that GVIO is one of the best predictors of standard of living and development potential and is often more reliable than net rural per capita income. Two townships, one above the median GVIO and one below were randomly selected from each county. Two villages in each township were selected in the same manner. Data problems in two counties in Yunnan precluded their inclusion in the analyses. Since some villages did not have any off farm employment, the number of villages used in the wage analysis was around 200.

respondents about village activities in 8 key markets in 1988 and in 1995. The two periods were chosen for their comparability; both years had high grain prices and followed several years of rapid economic growth in the rural sector. Enumerators completed the questionnaires during sit-down interviews with village leaders, accountants, and enterprise managers. These respondents also drew on a number of sources of secondary, recorded information³.

The data used in our analysis are mostly from the section of the survey which was designed to study the issues of labor migration (to both local and distant target areas) and are focused on those workers who worked off-farm outside their own villages⁴. Enumerators recorded information on both those workers that left the village for work and those workers that came into the village looking for work. This group of workers was the fastest growing component of the rural labor force, accounting for 50 percent of China's total off-farm labor force in 1988 and 66 percent in 1995 (Rozelle et. al., 1998).

³ In the case of the employment and wage data, for example, the village leader and the accountant used a worksheet supplied to them by the enumerator and cross-referenced a comprehensive list of households and family members in the village. The village leadership team then went one by one through the list and made notes on the family's off farm employment activities at the current time (that is 1995). Drawing on a similar list from 1988, leaders conducted a similar exercise for 1988. In the case of employment in the village's own firms of local and non-local workers, the data were cross checked with the information kept by the enterprise's accountant. The information on the worksheets were then aggregated to the village totals that were the figures entered on the final survey instrument. While rather untraditional, we believe that our data are fairly reliable and reflect the underlying trends in the economy across time and space. It is perhaps unsurprising that estimates based on these data actually come fairly close to figures generated by larger sampling and census efforts. For example, in Rozelle et al., (1998) our data predicts that the off farm labor market participation was 21 percent in 1988 and 33 percent in 1995. State statistical bureau figures are 20 and 31 percent, respectively. In a land section of our survey, we estimate the proportion of land in private plots to be 6 percent and the proportion in responsibility land to be 80 percent. A State Land Administrative study puts the figures at 5.5 and 79 percent. At the very least in these two cases, our data are reflecting underlying trends across time. We have no reason to suspect wage and employment data to behave any differently.

⁴ In other words, the data we used here do not include local non-agricultural labor, a category that is primarily made up of self-employed individuals. The self-employed are excluded because their earnings are not comparable—the earnings including returns to labor, land, capital, and entrepreneurship. For the 1995 sample, the data used in our analysis cover 27,288 workers in the 230 sample villages.

The categories of incoming and outgoing workers are each divided into two sub-groups: migrants and commuters. A migrant (*changqi waichu*), is a person who leaves his/her village for at least one month per year for a wage earning job, but retains direct ties to the village by returning during spring festival or annual peak season farm operations at the very least⁵. Our migrant category specifically excludes commuters who are also employed outside of his/her village, but who live at home. Commuters, referred to in many areas as those who “leave in the morning and return in the evening” (*zaochu wangui*), are not considered migrants by villagers and leaders, so separating the two categories facilitated data collection.

Hence, our data consist of four types of labor (henceforth, *labor types or labor categories*): in-migrants, out-migrants, in-commuters, and out-commuters. Each of these labor types is then broken down by year, by gender, and by industry. The unit of observation in our study (henceforth, *observation unit or labor unit*) is a group of workers in a village who share the common characteristics in terms of gender, labor type, employment sector, and location. For example, one of the observation units in our analysis will be the wage rate of female out-commuters in the textile industry for each sample village in Zhejiang in 1988. The wage variable used for each observation unit is the average monthly wage in 1988 or 1995⁶. The wage is deflated by the rural consumer price index for each province with 1988 as base year. The price indices are obtained from *China*

⁵ The survey only recorded information on individuals that moved for employment reasons and therefore ignores migration for marriage and other related reasons. Permanent household moves were tabulated but were not included (and, in fact, were fairly rare).

⁶ The wage information was reported to us in *yuan* per day or *yuan* per month, whichever unit was the most common. We switched all wages to *yuan* per month after asking questions about average working days per month.

Statistical Yearbook (SSB, 1989-1996). A summary of the wage statistics over gender, employment sectors, and job types is reported in Table 1.

In the wage analysis, the level of the observed wage is explained by a number of different observable factors. We use dummy variables to control for variations over time, gender, labor types, industries, and locations⁷. The benchmark observation unit in the respective set of dummies is 1988, male, in-commuters in the service sector in Zhejiang province. Other characteristics of each observation unit--such as the unit's average level of education, age, and the type of enterprise in which workers are employed--are measured by variables that reflect the respective composition of the labor unit. Specifically, the percentage of workers who graduated from high school (*gaozhong*) and the percentage from middle schools (*chuzhong*) in each observation unit are used to control for the group's education. The omitted category for education in our analysis is the percentage of workers whose educational attainment is lower than the level of middle-school graduates. The experience of each observation unit is measured by the proportion of workers under 26 years old and the proportion over 49. These variables are the crude measure of average work experience and physical strength of the labor unit. The omitted category is the group of workers who are 25 and older and 50 and younger. Our data also contain the information on the proportion within each observation unit of the workers who belonged to each of four different ownership categories, i.e., state-owned enterprises, collective enterprises, private firms, and joint ventures. For ownership type, the omitted category is

⁷ The province dummy is defined based on the location of the village we surveyed. Regrettably, the wage effect of this location variable would be different for those out-migrants who were not employed in their native province than for the other labor categories. The dummy variables that distinguish the incoming from the outgoing workers are introduced as a partial remedy for the lack of information on the destination of out-migrants.

state-owned enterprises and joint ventures. The average composition of the sample's observation unit in education, age and ownership forms is reported in Table 2.

3. Rural Wages and Gender Wage Gaps

Our strategy for examining the impact of the reforms on the gender wage gap will be as follows. First, we examine the descriptive trends of rural wages, comparing those of men and women during the reforms by education level, age, sector, and employment type. These figures will give us the raw wage gap between men and women in both 1995 and 1988. Next, we seek to decompose the gap, proceeding by constructing an empirical model of wage determination and using a "basic" model to carry out several tests. We first use the Oaxaca and Ransom (1994) and Neumark (1988) procedures to examine how much of the wage gap can be explained by human capital and sector-specific characteristics and how much is unexplained. The main assumption of the Oaxaca and Ransom and Neumark procedures is that the unexplained part of the wage gap is thought to be attributable to discrimination. To examine how the market reforms have affected the discrimination part of the wage gap we will examine how the explained and unexplained proportions change over time. Our second test examines if the unexplained wage gap increases over time by a statistically significant margin. If we do not find any statistically significant difference, this does not necessarily mean that there is not any increase in discriminatory behavior due to the breakdown in the gender equality precepts of the Socialist era. It could be that the increased discrimination allowed by the breakdown of ideology was offset by the increased discipline forced on employers by the increased competition that has arisen with the reforms. To test for this effect, we include a measure of competition in our empirical

specification, examining whether or not there is any measurable impact of competition on the gender wage gap.

Trends in Rural Wages during the Reforms

Somewhat surprisingly, given the rapid growth in rural incomes during most of the reform era, our point estimate of the overall average rural wage fell from 230 *yuan* per month to 220 *yuan* between 1988 and 1995 (see Table 1, columns 1 and 7). The trend appears for most industrial sectors and employment types. The most notable exceptions occur in the wage levels for those engaged in construction, transportation, and services, categories that have experienced rising wages. Wages have fallen for all labor types between 1988 and 1995 (that is for both migrants and commuters).

The fall in the real wage between 1988 and 1995, however, was most common for females in most labor types and industrial sectors (columns 5 and 11), and less so for males (columns 3 and 9). For example, the wage for men in the aggregate rose by 2 percent from 249 *yuan* in 1988 to 255 in 1995 during the period, driven largely by the rise in wage in construction, commerce, transportation, and services, the sectors which employed totally 71 percent of the male workers in the sample. The wage for women, however, fell from 193 to 175, by 9 percent. The wage for women fell sharply in the sectors in which women have high participation rates, including light industry, construction, and transportation.

The relative levels of wages for men and women in 1988 (that is 249 versus 193) and the diverging trends in wages for men and women during the period 1988 to 1995 mean that the raw gender wage gap that existed in 1988 became larger during the study period. In 1988, the wage for men was 29 percent higher than that for women (or 25 percent when measured as the difference in logs). By 1995, the wage gap had increased to

45.7 percent (or 38 percent in logs). And, the wage gap widened or had not decreased for all of the major employment categories for women. For example, the wage gap for light industry, the category that accounts for most of the employment for women, stayed constant; the gaps for the second two most popular categories, construction and transportation, widened significantly. One of the other key areas in which the wage gap widened was for two main labor types, out-migrants and out-commuters. The wage difference between men and women for long-term out-migrants rose from 31 to 45 percent and that for out-commuters rose from 32 to 57 percent.

The rest of this section concentrates on explaining the raw wage gap. How much can it be explained by differences in human capital traits or the selection of employment category or job type? How much is unexplained, in the methodology of Oaxaca and Ransom and Neumark, a sign of wage discrimination? How much of the change is due to these factors? In short, what determines wages in the China's reform era and how have the reforms affected the wage gender gap?

The Determinants of Rural Wages

The Basic Regressions. Our basic analysis of the determinants of rural wages is carried out by regressing a series of wage observations for the observation or labor units defined in section 2 on a series of explanatory variables. The explanatory factors include the human capital characteristics of the workers (e.g., education and age), an indicator variable for each unit's employment sector (e.g., light industry or heavy industry), the labor category (e.g., migrant or commuter) and ownership type (e.g., private or collective), and a set of provincial and year dummies and geographic control variables⁸. The industrial

⁸ We also control for unobserved regional geographical and development effects by the indexes of core-periphery zone (CPZ) and city system (CS). Taken from Skinner (1994), the CPZ variable measures the

sector, ownership forms, labor types, and locational variables are introduced to the wage regressions to control for the productive characteristics that are not captured by the education and age variables, and the factors that may affect wages as a result of labor market imperfections other than wage discrimination. Wages also may vary over employment sectors, ownership types, or provinces if there is significant labor market segmentation. Migrants and commuters may be compensated differently because of the difference in the costs of employment (e.g., in transportation and accommodation) between the two types of workers. Basic wage regressions are run separately for the males, females, and the pooled sample for each of the two sample periods, and the results are used for the wage gap decomposition exercise. Our subsequent statistical analysis builds on the basic regressions to examine the determinants of the differences between the wage for men and women. All t-statistics reported in the paper are calculated using the standard errors that are heteroskedastic consistent.

The results of the basic wage equations are reported in Table 3. Judging by the sign of the estimates and adjusted R-square statistics, our model performs reasonably well. Comparing the estimates between 1988 and 1995, we notice some interesting changes in the wage structures for rural workers. For example, the education variables have coefficients that display a strengthening of the importance of schooling in wage determination. Other results, while important for explaining changes in the wage gap, are not as intuitive. For example, the wage differentials among age groups narrows between 1988 and 1995. Whatever its cause, however, the fall in the wage gap between the young

distance of a village from the “core” metropolis of the macro region and is measured from 1 to 7 with 7 being the most remote. The CS variable is an index of urbanization for the county that the village belongs to with a value of ranging from 1 to 6 for the most and least urbanized country.

and middle-age groups is expected to have a positive effect on wage equality between men and women because the composition of female off-farm workers is strongly biased towards the young age group, compared with that of male workers (see Table 2). Although for most of employment sectors the wage differentials with respect to the omitted category, i.e., services, within regions were shrinking between 1998 and 1995, the gap between construction and light industry, the sectors that are dominated respectively by men and women, more than doubled. As we show shortly, the rise in wage gap between the two most gender-segregated sectors was an important contributing factor to the rising wage inequality between men and women. Our results also show that wage inequality among provinces was increasing between 1988 and 1995, especially for women, a result that suggests lagging labor market development. The result, however, may be a function of the timing of our survey and normal frictions in labor markets. China's economy was growing at its peak speed in 1995 and the demand for labor was high throughout the country. The wage premiums offered by those fastest growing areas may reflect temporary rises in wages that were eventually competed away, a conjecture that could only be tested with additional data collection and analysis.

Wage Decompositions. In this section, we first estimate the gender wage gap and examine the hypothesis that the gender gap for rural wage earners has risen during the reform using the decomposition procedures of wage differentials by Oaxaca and Ransom (1994) and Neumark (1988). The procedures divide the gross gender wage differential into explained and unexplained components. The explained wage gap is the part of the wage differential due to differences of various measurable productive characteristics and other attributes, such as the employment sectors, labor types, ownership form, and locations,

between male and female⁹. The unexplained gap is the part of the differential due to the differences between the coefficients of the male and female wage equations. Since in the absence of discrimination male and female would receive identical returns for the same characteristics, the unexplained wage gap can be interpreted as the part of the wage differential due to discrimination (although it also contains other factors that are embodied in the residual). The Oaxaca procedure uses either the estimates of the *male* wage equation or the estimates of the *female* wage equation as the reference in the decomposition (from Table 3, columns 2, 3, 5, and 6), whereas Neumark suggests that the coefficients of the *pooled* male and female wage equation be used as the reference, no-discriminatory wage structure (from Table 3, columns 1 and 4). To understand the sensitivity of the results of the decomposition exercise to the choice of the reference wage structure, we use all three estimates, the coefficients of the *male*, *female*, and *pooled male and female wage equations*, in the decomposition of the gender wage gap in 1988 and 1995.

Using the wage regressions reported in Table 3, the decomposition results are presented in Table 4. The results show that the raw gender wage gap in log form (from the predictions of log wages) was sizeable and widening over time, with a value of 0.315 in 1988 and 0.340 in 1995. The unexplained proportion (attributed to discrimination) appears to dominate the wage gap, accounting for more than two thirds of the raw gap using the Oaxaca method and about a half using the Neumark method for both periods. In comparison, the weight of the unexplained part of the gender wage gap ranges from 28 to 47 percent in the urban sector (Maurer-Fazio and Hughes, 1999) and from 84 to 91 percent

⁹ In Oaxaca and Ransom (1994) and Neumark (1988), the authors attribute the explained gender wage gap exclusively to different productive characteristics between male and female. We explain this part of wage differential by the difference in productive characteristics between men and women as well as the difference in their accessibility to a certain industry, a certain type of firms, or a certain type of job.

for workers in rural industry (Meng, 1998). Our estimates are more in line with the findings by Meng than by Maurer-Fazio and Hughes. One explanation of the greater discrimination that is observed in rural areas is that it is more prevalent because the traditional patriarchal value is rooted more deeply in the countryside. However, the more competitive, less regulated nature of the rural economy makes these urban-rural comparisons puzzling.

While the unexplained portion continued to be the dominant component of the wage gap in 1995, a large part of the *change* in raw wage gap was attributable to the change in productive and other characteristics of workers. Using both the Oaxaca and Neumark methods, the differences in the characteristics of males and females accounted for most of the rise in raw gender gap. Using the estimates by the Neumark method, we further decompose the explained wage gaps into the portions associated with human capital characteristics (education and age), with industrial sector selection, and with the other characteristics. We find that the wage gap due to education and age differences fell from 0.072 in 1988 to 0.050 in 1995, largely due to the narrowing wage differentials between the young and middle-age groups. In contrast, the gap associated with industrial allocation rose from 0.110 in 1988 to 0.146 in 1995. This result is not surprising given the rising wage differential between the two most gender-segregated sectors, i.e., construction and light industry, indicated by the wage regression results in Table 3.

Since most of the *increase* in the wage gap can be explained by differences in productivity or other characteristics of male and female workers, according to the Oaxaca and Neumark methods, little or none of the rise in the male-female wage gap is from increased discrimination. The unexplained wage gap increased only marginally, from

0.232 to 0.236 according the Oaxaca method with the male wage structure used as the weight (only 20 percent of the increase in the gap) and from 0.158 to 0.166 based on the Neumark method with the pooled wage structure as the weight (or 32 percent—Table 6, columns 3 and 6). The unexplained wage differential actually fell from 0.270 to 0.259 when we applied the Oaxaca procedure with the female wage structure used as the weights. The unexplained part of the wage gap (or that part that may be explained by discrimination) unambiguously fell *relative* to that part due to productive characteristics with all three weighting schemes. Hence, according to the wage decomposition exercises, the market reforms made the wage structure of rural workers more responsive to the productive and other characteristics of individual workers relative to the gender preference of employers, and less subject to discrimination.

Competition, Discrimination, and Wages in Rural China. In furthering our search for the determinants of the wage gap, we modify the specifications of our wage regressions in several ways. First, we pool the two cross sections of observations (that is, we combine the data to include both 1988 and 1995 observations) and add a gender dummy to our pooled wage regressions (that is, we use observations for both males and females). Given our log-specification, the coefficient on the gender indicator variable measures the *conditional* wage gap (that is, conditional on the presence of the other explanatory variables in the model). We use year dummies and a competition index (and interactions with the gender dummy) to examine whether or not the wage gap has been affected by the market liberalization during the reform era. Finally, we examine (in Tables 6 and 7) how much of the wage differences between men and women are explained by market segmentation (by job type, industrial sector, or ownership).

The estimates from our new specification presented in the first three columns of Table 5 demonstrate that the gender wage gap is large but remains unchanged between 1988 and 1995. The coefficient on the female indicator variable (-0.33--row 1, column 1) means that holding the human capital, year, and geographic variables constant, the wages of women were 33 percent lower than those of men, and the difference is statistically significant. The low t-statistic on the year dummy variable (row 2, columns 1 and 2), however, implies that the observed fall in wages is due to other factors, (e.g., perhaps the changing composition of the labor force). The t-statistic on the interaction term between the gender and year dummies also is low, consistent with the findings of the decomposition procedures that the level of wage discrimination remained constant over the time span from 1988 to 1995. Importantly, our results are robust to the inclusion or exclusion of sets of dummy variables measuring the observation unit's employment sector, the ownership of the hiring firm, and the labor category (with the exception of the size of the conditional wage gap, an issue that we return to below).

In the regressions reported in the last three columns of Table 5, we add a competition index to our specification to test directly the gender wage effect of market competition¹⁰.

¹⁰ The competition index, based on Guo (1998), is constructed by assigning 0 to services and other sectors, 0.1 to light industry, 0.15 to transportation, 0.2 to construction, 0.5 to commerce, 1 to heavy industry, and 1.44 to mining industry. An alternative index which we tried was 0 to services and other sectors, 0.2 to light industry, construction and transportation, 0.5 to commerce, 1 to heavy industry and 1.44 to mining industry. The results of using the alternative competition index are similar to those reported in Table 3.

With the competition index constructed in a way such that a lower score means a more competitive sector, the estimates of the competition index and the competition index interacted with the female dummy variable (rows 4 and 5 in columns 4 to 6) indicate that the degree of competition is negatively correlated with the wage level but negatively with the level of wage discrimination.

While the sign pattern seems consistent with Becker's view that market competition tends to improve labor market outcomes for disadvantaged groups, none of these estimates are statistically significant. Thus, with our crude measure of competition, we are unable to reject the null hypothesis that market competition has no effect on wage discrimination against women. As can be seen from Table 5, the inclusion of the competition index does not alter the basic findings from the wage regressions reported in the first three columns, so the competition variables were dropped from the remaining regressions.

Market Segmentation and Wage Differences. The wage regressions reported in Table 6 are intended to examine how job segmentation and selection by men and women into certain industries, types of firms, and labor types affect the *conditional* gender wage gap (which is continued to be measured by the coefficient on the gender dummy variable). We add industry, ownership, and labor type dummies first separately and then jointly to our basic pooled wage equation (that is, the one in Table 5, Column 2). Similar to the findings from the decomposition procedures, the results reported in Table 6 show that job segmentation and selection by gender explains a significant part of the *conditional* gender wage gap, but that the level of wage discrimination against women remained constant during the reforms. When compared with the basic model (Table 5, Column 2) that shows a conditional gender wage gap of 34 percent, adding a set of industrial sector dummies

reduces the coefficient of the female indicator variable to 0.28, implying that 18 percent of the gap arises from the fact that men are disproportionately employed in industries that pay higher wages. As shown in Table 1, 66 to 70 percent of male workers in our sample work in the construction and mining industries, but only 8 to 9 percent of women work in construction and mining, sectors that, everything else held constant, offer significantly higher wages (Table 6, Columns 1, 4 and 5).

In contrast, when adding firm ownership type dummies (Table 6, column 2) and job category dummies (column 3), the conditional gap decreases little or none. Market segmentation by ownership possibly could play a role in the wage gap, since private firms do offer higher wages, *ceteris paribus*. However, since the distribution of male rural workers over collective, private, and state-owned firms (33, 55, and 13 percent) versus that of women (33, 52, and 14 percent) are nearly the same (Table 2), accounting for ownership does not help explain the wage gap. The effect of controlling for migration matters in terms of the overall wage rate, only reduces the conditional wage gap by 3 percent (from 34 to 31 percent—column 3). Controlling for both industrial structure and job category produces the lowest conditional wage gap (23 percent—Table 6, column 5).

So far, we have assumed that the gender wage gap is invariant over industrial sectors, ownership types, and job categories. In the wage regressions reported in Table 7, we relax this assumption to see whether there is a systematic association between the level of wage discrimination against women and the degree of competitiveness in a certain industrial sector, a certain type of firm, or for a certain labor type. The estimates in Table 7, however, fail to establish such an association; almost all of the interaction terms between the sets of indicator variables and the gender dummy are insignificant. Interestingly, even

in economies that are dominated by competitive industries (such as light industry), by private firms, and that have well-developed labor markets (like those with large out- and in-migrant labor forces-), the wage gaps between males and females are not any larger or smaller. More significantly, when the effects are accounted for, the *change* of the aggregate female wage gap over time is still not significantly from zero.

4. Conclusions

In this paper, we estimate gender wage gaps in the rural economy between 1988 and 1995 and find that women received wages substantially lower than did their male counterparts. One interpretation is that wage discrimination against women is pervasive in the rural sector where the traditional Confucian ideology has deep roots. We also examined the impact of market liberalization on the wage discrimination using three methods. First, using several methods we estimate whether or not the wage gap attributed to discrimination has grown between 1988 and 1995. We find that the size of the unexplained part of the gender wage gap was stable over time, but its relative importance fell. Next, to see if there were possible offsetting effects from rising discrimination and competition from emerging markets, we test the effect of competition by introducing a competition index and a gender-competition interaction variable to the wage regressions. With our admittedly crude measure of competition, we cannot detect if rising competition during the reform era affects the wage gap. Finally, we try to explore if there is any difference in wage gaps between the more and the less market-oriented sectors, ownership forms, or labor categories. Once again, however, we fail to find a systematic association between the level of wage discrimination and the degree of market orientation by industry, ownership, or job type. In short, the results of our investigation fail to lend a support for

the prediction that market liberalization will work to women's disadvantage as the socialist ideology of gender equality fades away in the reform process or Becker's view that market competition tends to improve labor market outcomes for disadvantaged groups.

Our finding that women have not suffered any measurable increase in wage discrimination, however, needs to be qualified. Our sample covers the time span between 1988 and 1995. The first year of period of investigation is already ten years into the reforms. Since studies (i.e., Brainerd, 1998) suggest that the onset of discrimination can happen rather quickly (e.g., in less than 5 years in some East European transitional economies), our finding of no change in discrimination between 1988 and 1995 does not rule out the possibility that there had been rising discrimination between the onset of the reforms and 1988, the beginning period of our investigation.

However, our finding of no change in wage discrimination in the rural economy is at odds with the results of Maurer-Fazio and Hughes (1999) who find evidence of increased discrimination in the urban economy from a sample in the early 1990s. One explanation of why our results differ from those of studies done in the urban economy is that they are due to the institutional nature of the rural economy in the reform era and how it has evolved since the late 1970s. Whereas the urban economy had extremely high rates of female participation on the eve of the reforms and the state's influence was more comprehensive, the rural economy was more decentralized, less influenced by party politics, and had lower rates of female participation in the formal employment sector (that is outside of working in communal agriculture). From this point of view, it may be unsurprising that the status of women in the urban sector fell further, since they had received more protection from the government under the Socialist rubric of gender equality. Moreover, our cautionary

remarks about the limited nature of study period need to be considered. By the late 1980s, the rural reforms had already created relatively competitive markets. The marginal increase in competition between 1988 and 1995 may be such that the rise is insufficient to affect the size of the gender wage gap. But, even though there is no increase in discrimination, the large unexplained gender gap may mean that there is still large room for policy to combat the inequality between men and women in the post-reform rural economy.

Table 1. A Summary of Average Wage Statistics, 1988 and 1995.

	1988						1995					
	Total		Male		Female		Total		Male		Female	
	Wage (yuan)	%	Wage (yuan)	%	Wage (yuan)	%	Wage (yuan)	%	Wage (yuan)	%	Wage (yuan)	%
Total	230	100	249	100	193	100	220	100	255	100	175	100
Employment Sector												
Light Industry	229	31	267	16	202	78	212	32	246	15	191	74
Heavy Industry	225	7	246	9	148	1	190	4	202	4	162	3
Mining Industry	268	3	282	4	180	0.5	185	4	188	5	146	0.5
Construction	244	49	250	62	199	8	256	49	269	65	183	9
Commerce	246	4	233	6	280	0.5	232	5	254	7	144	0.5
Transportation	183	3	254	2	162	7	187	3	315	2	145	8
Services and others	152	3	156	1	144	5	171	3	220	2	131	5
Types of Workers												
Out-Commuter	218	59	240	54	182	74	209	42	246	41	156	46
Out-Migrant	252	34	262	40	224	15	234	44	272	48	188	35
In-Commuter	218	3	247	2	188	8	209	5	234	4	171	7
In-Migrant	216	4	241	4	165	3	212	9	242	7	177	12

Table 2. The Distribution of the Labor Force over Education, Age and Ownership Type in the Sample, 1988 and 1995

	The Full Sample			1988			1995		
	All	Male	Female	All	Male	Female	All	Male	Female
<u>Education</u>									
% High School Graduates	8.9	9.7	7.7	8.3	8.2	8.6	9.2	10.6	7.3
% Middle School Graduates	60.2	57.3	60.8	58.7	56.3	63.1	60.9	58.0	64.8
<u>Age</u>									
% 25 or younger	47.4	38.5	60.8	47.9	40.8	61.4	47.1	37.1	60.5
% 50 or older	3.7	5.2	1.6	4.1	5.3	1.7	3.5	5.0	1.5
<u>Ownership Type</u>									
State-owned Enterprise	10.0	10.5	9.1	11.8	11.6	12.3	9.0	9.9	7.8
Collective	32.2	31.5	33.4	35.5	34.3	37.8	30.6	29.9	31.6
Private Firm	54.1	55.1	52.5	50.3	52.1	46.9	56.0	56.9	54.9
Other Types	3.7	2.9	5.0	2.4	2.0	3.0	4.4	3.3	5.7

Table 3. Wage Equations for Decomposition of Gender Wage Gap over Time

	Dependent Variable: Log Wage					
	1988			1995		
	All Workers	Male Workers	Female workers	All workers	Male workers	Female workers
<u>Education , Age and Location</u>						
% High School Graduates	0.18 (1.02)	0.14 (0.65)	0.35 (0.82)	0.44 (3.01)***	0.31 (1.95)**	0.43 (1.54)
% Mid-School Graduates	0.11 (0.97)	0.22 (1.67)*	-0.07(-0.28)	0.17 (2.70)***	0.24 (2.51)**	0.13 (1.56)
% Under Age 25	-0.39(-4.84)***	-0.27 (-2.84)***	-0.45(-3.01)***	-0.18 (-3.11)***	-0.11(-1.21)	-0.10 (-1.37)
% Over Age 50	-0.004(-0.01)	-0.018(-0.06)	-0.40(-1.13)	0.13 (0.74)	0.03(0.14)	0.08 (0.36)
CPZ	-0.02(-1.12)	-0.02(-1.05)	-0.02(-0.73)	-0.01(-0.84)	-0.004(-0.19)	-0.03(-1.39)
CS	-0.01(-0.29)	-0.03(-0.86)	0.05 (0.59)	-0.05(-2.04)**	-0.08 (-2.24)**	-0.02(-0.49)
<u>Provincial Dummies</u>						
Sichuan	-0.27(-3.17)***	-0.27(2.46)**	-0.27(-1.95)**	-0.39(-7.33)***	-0.35(-4.46)***	-0.47(-6.35)***
Hubei	-0.21(-2.44)**	-0.15(1.52)	-0.28(-1.43)	-0.53(-7.03)***	-0.49(-4.50)***	-0.59(-5.81)***
Shaanxi	-0.27(-2.75)***	-0.53(-4.45)***	-0.87(-4.54)***	-0.80(-10.63)***	-0.70(-7.38)***	-0.91(-7.82)***
Yunnan	-0.36(-2.02)**	-0.38(-2.37)**	-0.36(-0.62)	-0.50(-5.47)***	-0.49(-3.94)***	-0.61(-4.66)***
Shandong	-0.27(-2.75)***	-0.35(-2.97)***	0.04 (0.22)	-0.36(-4.29)***	-0.34(-2.70)***	-0.41(-4.17)***
Hebei	-0.08(-0.56)	-0.07(-0.43)	-0.15(-0.55)	-0.21(-2.07)**	-0.01(-0.04)	-0.49(-3.47)***
Liaoning	-0.06(-0.41)	-0.15(-0.76)	0.004(0.02)	-0.01(-0.13)	0.11(0.66)	-0.22(-1.82)*
<u>Employment Sector</u>						
Light Industry	0.32(1.80)*	0.40 (1.67)*	0.44 (2.20)**	-0.05(-0.03)	0.03 (0.09)	-0.02 (-0.18)
Heavy Industry	0.40(1.77)*	0.45 (1.51)	0.23 (0.57)	0.07 (0.35)	-0.05(-0.12)	0.19 (0.10)
Mining	0.72(3.31)***	0.79 (2.89)***	0.42 (1.36)	0.20 (1.10)	0.16 (0.45)	0.004(0.03)
Construction	0.49(2.65)***	0.51 (2.09)**	0.43 (1.85)*	0.30 (1.67)*	0.27 (0.73)	0.21 (1.53)
Commerce	0.34(1.54)	0.40 (1.42)	0.21 (0.59)	0.18 (0.89)	0.27 (0.74)	-0.41(-1.56)
Transportation	0.16(0.77)	0.29 (0.94)	0.44 (1.72)*	-0.09(-0.52)	0.05 (0.13)	-0.08(-0.63)
<u>Ownership</u>						
Collectives	-0.04(-0.34)	-0.09(-0.68)	0.03(0.16)	-0.01(-0.15)	-0.07(-0.71)	0.10(1.13)
Private firms	0.17 (1.65)*	0.11(0.90)	0.26(1.50)	0.07(1.11)	0.03(0.40)	0.13(1.49)
<u>Types of Workers</u>						
Out-Commuter	-0.07(-0.67)	-0.03(-0.24)	-0.13(0.83)	-0.03(-0.29)	-0.06(-0.52)	0.05(0.63)
Out-Migrant	0.10(0.91)	0.06(0.41)	0.08(0.43)	0.24 (3.44)***	0.15(1.42)	0.34(3.84)***
In-Migrant	-0.09(-0.71)	-0.09(-0.54)	-0.11(-0.57)	0.02(0.13)	-0.03(-0.25)	0.07(0.55)
Constant	5.27(19.87)***	5.32(15.43)***	5.00(11.92)***	5.51(25.70)***	5.67(16.37)***	5.28(25.17)***
Adjusted R ²	0.27	0.20	0.26	0.26	0.18	0.32
N	369	242	127	714	409	305

Notes: T-statistics reported in parentheses are calculated using heteroskedastic-consistent standard errors. In-commuters, service and other sectors, Zhejiang ,and state-owned enterprises and other types of firms are left out from the regressions. *, **, *** indicate significance at 10, 5 and 1 percent respectively.

Table 4. Gender Wage Gap Decomposition ¹

	1988			1995		
	Total	Explained	Unexplained	Total	Explained	Unexplained
<u>Oaxaca</u> ²						
Male-weight	0.315	0.084	0.232	0.340	0.104	0.236
(%)	100.00	26.67	73.33	100.00	30.59	69.41
Female-weight	0.315	0.045	0.270	0.340	0.081	0.259
(%)	100.00	14.28	85.72	100.00	23.82	76.18
<u>Neumark</u> ³						
Value	0.315	0.157	0.158	0.340	0.174	0.166
(%)	100.00	49.84	50.16	100.00	51.18	48.82
For explained gap:						
Human capital			0.072			0.050
Industrial segregation		0.109			0.146	
The other sources		-0.024			-0.022	

Notes:

1. The gender wage gap was decomposed using the estimates reported in Table 2.
2. The Oaxaca decompositions were performed using the estimates of both the male- and female-wage equations as the weight.
3. In the Neumark decompositions, the estimates of the pooled male-female wage equations were used as the weight.

Table 5. Wage Regressions: Competition and Gender Bias, 1988 and 1995.

	Dependent Variable: Log Wage					
	(1)	(2)	(3)	(4)	(5)	(6)
Female	-0.33(-9.97)***	-0.34(-5.94)***	-0.23(-3.44)***	-0.34(-5.60)***	-0.33(-5.28)***	-0.21(-3.31)***
<u>Year and Competition Variables</u>						
1995	-0.03(-0.76)	-0.04(-0.85)	0.27(0.79)	-0.04(-0.85)	-0.04(-0.83)	-0.05(-1.21)
Female*1995	----	0.03(0.43)	-0.01(-0.13)	0.03 (0.41)	0.03(0.40)	0.003(0.04)
Competition Index	----	----	----	-----	0.05 (0.87)	-----
Female*Compind	----	----	-----	-0.04(-0.38)	-0.09(-0.78)	-0.09(-0.76)
<u>Education, Age and Location</u>						
% High School Graduates	0.17 (1.43)	0.17(1.44)	0.18(1.01)	0.17 (1.46)	0.18 (1.53)	0.30(2.65)***
% Middle-school Graduates	0.10 (1.85)*	0.10(1.86)*	0.11(0.91)	0.10 (1.84)*	0.10 (1.89)*	0.15(2.76)***
% Under Age 25	-0.15(-3.39)***	-0.15(-3.39)***	-0.35(-4.49)***	-0.15(-3.42)***	-0.15(-3.28)***	-0.18(-3.95)***
% Over Age 50	-0.05(-0.39)	-0.05(-0.39)	-0.09(-0.45)	-0.05(-0.40)	-0.05(-0.41)	0.01(0.10)
CPZ	-0.003(-0.25)	-0.003(-0.26)	-0.02(-1.12)	-0.002(-0.25)	-0.004(-0.34)	-0.02(-1.65)*
CS	-0.05(-2.52)**	-0.049(-2.51)**	-0.01(-0.27)	-0.05(-2.51)**	-0.05(-2.57)***	-0.03(-1.77)*
<u>Provincial Dummies</u>						
Sichuan	-0.30(-6.61)***	-0.30(-6.61)***	-0.27(-3.20)***	-0.30(-6.59)***	-0.30(-6.58)***	-0.36(-8.16)***
Hubei	-0.35(-6.00)***	-0.35(-6.01)***	-0.21(-2.48)**	-0.35(-5.99)***	-0.36(-6.09)***	-0.42(-7.26)***
Shaanxi	-0.65(-12.19)***	-0.65(-12.21)***	-0.61(-6.25)***	-0.65(-12.23)***	-0.65(-12.24)***	-0.72(-12.61)***
Shandong	-0.30(-4.64)***	-0.30(-4.63)***	-0.27(-2.82)***	-0.30(-4.55)***	-0.30(-4.53)***	-0.32(-5.08)***
Yunnan	-0.45(-5.81)***	-0.45(-5.80)***	-0.37(-2.09)**	-0.44(-5.75)***	-0.45(-5.77)***	-0.46(-5.81)***
Hebei	-0.10(-1.22)	-0.10(-1.22)	-0.08(-0.59)	-0.10(-1.21)	-0.10(-1.27)	-0.15(-1.92)*
Liaoning	0.05(0.61)	0.05(0.61)	-0.04(-0.26)	0.05 (0.64)	0.05 (0.60)	-0.04(-0.47)
<u>Employment Sector</u>						
Light industry	----	----	0.38 (2.12)**	----	----	0.14 (1.08)
Heavy industry	----	----	0.38(1.67)*	----	----	0.18 (1.08)
Mining	----	----	0.79(3.13)***	----	----	0.34 (2.18)*
Construction	----	----	0.45(2.39)**	----	----	0.31 (2.21)*
Commerce	----	----	0.34(1.52)	----	----	0.21 (1.31)
Transportation	----	----	0.27(1.27)	----	----	0.07 (0.48)

Table 5. Wage Regressions: Competition and Gender Bias, 1988 and 1995 (continued)

	Dependent Variable: Log Wage					
	(1)	(2)	(3)	(4)	(5)	(6)
<u>Ownership Types</u>						
Collectives	----	----	-0.04(-0.37)	----	----	-0.02(-0.29)
Private Firms	----	----	0.16 (1.57)	----	----	0.11 (2.03)**
<u>Types of Workers</u>						
Out-Commuter	----	----	-0.06 (-0.63)	----	----	-0.02 (-0.27)
Out-Migrant	----	----	0.08 (0.69)	----	----	0.19 (3.44)***
In-Migrant	----	----	-0.11(-0.85)	----	----	-0.000(-0.006)
F-stat on all variables interacted with 1995 year dummy except female dummy p-value	----	----	1.21 0.22	----	----	----
Constant	5.85(78.40)***	5.86(77.28)***	5.34(19.78)***	5.86(77.28)***	5.85(76.91)***	5.85(76.91)***
Adjusted R ²	0.24	0.24	0.29	0.24	0.24	0.29
N	1,083	1,083	1,083	1,083	1,083	1,083

Note: T-statistics reported in parentheses are calculated using heteroskedastic-consistent standard errors. In-commuters, service and other sectors, Zhejiang, and state-owned enterprises and other types of firms are left out from the regressions. *, ** and *** indicate significance at 10, 5 and 1 percent respectively.

Table 6. Wage Regressions: Industry, Ownership, and Job Type and Gender Bias, 1988 and 1995

	Dependent Variable: Log Wage				
	(1)	(2)	(3)	(4)	(5)
Female	-0.28(-4.56)***	-0.34(-5.93)***	-0.31(-5.48)***	-0.27(-4.49)***	-0.23(-3.98)***
1995	-0.04(-0.86)	-0.05(-1.12)	-0.04(-1.09)	-0.04(-1.07)	-0.05(-1.22)
Female*1995	0.04 (0.53)	0.03 (0.37)	0.001(0.02)	0.03 (0.47)	0.01(0.09)
<u>Education, Age and Location</u>					
% High School Graduates	0.24 (2.03)**	0.19 (1.67)*	0.22(1.93)*	0.26 (2.22)**	0.29(2.58)***
% Middle-School graduates	0.14 (2.55)**	0.09 (1.77)*	0.12(2.31)**	0.14 (2.43)**	0.16(2.78)***
% Under Age 25	-0.13(-2.87)***	-0.15(-3.54)***	-0.21(-4.67)***	-0.13(-2.92)***	-0.18(-3.97)***
% Over Age 50	-0.01(-0.06)	-0.04(-0.41)	-0.03(-0.22)	-0.01(-0.06)	0.02(0.13)
CPZ	-0.003(-0.27)	-0.02(-1.55)	-0.01(-0.71)	-0.02(-1.56)	-0.02(-1.65)*
CS	-0.05(-2.32)**	-0.04(-1.91)*	-0.05(-2.38)**	-0.04(-1.81)*	-0.03(-1.75)*
<u>Provincial Dummies</u>					
Sichuan	-0.32(-6.88)***	-0.32(-7.27)***	-0.33(-7.59)***	-0.35(-7.56)***	-0.36(-8.16)***
Hubei	-0.39(-6.58)***	-0.34(-5.93)***	-0.40(-6.82)***	-0.39(-6.58)***	-0.42(-7.25)***
Shaanxi	-0.68(-12.20)***	-0.67(-12.50)***	-0.69(-12.71)***	-0.70(-12.50)***	-0.72(-12.62)***
Shandong	-0.33(-5.23)***	-0.28(-4.17)***	-0.32(-4.82)***	-0.31(-4.82)***	-0.32(-5.09)***
Yunnan	-0.46(-5.61)***	-0.43(-5.60)***	-0.48(-6.47)***	-0.45(-5.53)***	-0.46(-5.82)***
Hebei	-0.11(-1.41)	-0.12(-1.52)	-0.12(-1.54)	-0.14(-1.75)*	-0.15(-1.91)*
Liaoning	0.02 (0.25)	-0.05(-0.53)	0.05(0.55)	-0.07(-0.84)	-0.04(-0.50)
<u>Employment Sector</u>					
Light Industry	0.17 (1.36)	----	----	0.16 (1.22)	0.14(1.07)
Heavy Industry	0.13 (0.82)	----	----	0.14 (0.94)	0.15(0.98)
Mining	0.35 (2.40)**	----	----	0.36 (2.42)**	0.32(2.18)**
Construction	0.35 (2.66)***	----	----	0.33 (2.50)**	0.30(2.19)**
Commerce	0.22 (1.45)	----	----	0.23 (1.51)	0.19(1.26)
Transportation	0.16 (1.24)	----	----	0.14 (1.04)	0.06(0.44)

Table 6. Wage Regressions: Industry, Ownership, and Job Type and Gender Bias, 1988 and 1995 (continued).

	Dependent Variable: Log Wage				
	(1)	(2)	(3)	(4)	(5)
<u>Ownership Type</u>					
Collectives	----	-0.07(-1.16)	----	-0.07(-1.22)	-0.02(-0.35)
Private Firms	----	0.11 (2.12)**	----	0.10(1.90)*	0.11(2.00)**
<u>Types of Workers</u>					
Out-Commuter	----	----	0.001(0.02)	----	-0.02(-0.31)
Out-Migrant	----	----	0.23 (4.20)***	----	0.19 (3.37)***
In-Migrant	----	----	0.01 (0.08)	----	-0.004(-0.05)
Constant	5.56(36.87)***	5.84(61.19)***	5.80(68.75)***	5.57(33.24)***	5.52(33.02)***
Adjusted R ²	0.26	0.25	0.27	0.27	0.29
N	1,083	1,083	1,083	1,083	1,083

Note: T-statistics reported in parentheses are calculated using heteroskedastic-consistent standard errors. In-commuters, service and other sectors, Zhejiang ,and state-owned enterprises and other types of firms are left out from the regressions. *, ** and *** indicate significance at 10,5 and 1 percent respectively.

Table 7: Wage Regressions: Gender Bias between Industries, Ownership Types, and Job Categories, 1988 and 1995

	Dependent Variable: Log Wage				
	(1)	(2)	(3)	(4)	(5)
Female	-0.09(-0.35)	-0.44(-4.05)***	-0.27(-2.65)***	-0.20(-0.74)	-0.26(-0.97)
1995	-0.04(-0.85)	-0.05(-1.14)	-0.04(-1.01)	-0.05(-1.08)	-0.05(-1.24)
Female*1995	0.03 (0.37)	0.03 (0.41)	-0.01(-0.11)	0.03(0.37)	-0.01(-0.13)
<u>Education, Age and Location</u>					
% High School Graduates	0.27(2.32)**	0.20(1.67)*	0.22(1.94)*	0.29(2.51)**	0.32(2.89)***
% Middle School Graduates	0.15(2.62)***	0.10(1.77)*	0.12(2.29)**	0.14(2.51)**	0.17(2.97)***
% Under Age 25	-0.14(-3.03)***	-0.16(-3.49)***	-0.22(-4.67)***	-0.14(-3.05)***	-0.18(-3.96)***
% Over Age 50	-0.01(-0.49)	-0.05(-0.37)	-0.03(-0.21)	-0.01(-0.04)	0.02(0.14)
CPZ	-0.003(-0.27)	-0.02(-1.57)	-0.01(-0.22)	-0.02(-1.52)	-0.02(-1.62)
CS	-0.05(-2.45)**	-0.04(-1.98)**	-0.05(-2.39)**	-0.04(-1.99)**	-0.04(-1.86)*
<u>Provincial Dummies</u>					
Sichuan	-0.32(-6.73)***	-0.32(-7.16)***	-0.33(-7.51)***	-0.34(-7.32)***	-0.36(-7.86)***
Hubei	-0.39(-6.64)***	-0.34(-5.81)***	-0.40(-6.75)***	-0.38(-6.51)***	-0.42(-7.22)***
Shaanxi	-0.68(-12.16)***	-0.67(-12.55)***	-0.69(-12.69)***	-0.70(-12.47)***	-0.72(-12.57)***
Shandong	-0.34(-5.17)***	-0.28(-4.14)***	-0.32(-4.83)***	-0.31(-4.67)***	-0.32(-4.97)***
Yunnan	-0.46(-5.70)***	-0.44(-5.62)***	-0.48(-6.40)***	-0.46(-5.61)***	-0.46(-5.82)***
Hebei	-0.12(-1.49)	-0.12(-1.52)	-0.12(-1.54)	-0.15(-1.81)*	-0.15(-1.92)*
Liaoning	0.03(0.36)	-0.04(-0.51)	0.05(0.55)	-0.06(-0.68)	-0.03(-0.37)
<u>Employment Sector</u>					
Light Industry	0.22(0.99)	----	----	0.20(0.37)	0.17(0.76)
Heavy Industry	0.21(0.87)	----	----	0.21(0.91)	0.19(0.78)
Mining	0.45(1.96)**	----	----	0.44(1.90)*	0.39(1.66)*
Construction	0.45(2.04)**	----	----	0.42(1.87)*	0.37(1.58)
Commerce	0.39(1.71)*	----	----	0.38(1.63)	0.34(1.38)
Transportation	0.25(1.05)	----	----	0.22(0.89)	0.15(0.58)

Table 7. Wage Regressions: Gender Bias between Industries, Ownership Types, and Job Categories, 1988 and 1995 (continued).

	Dependent Variable: Log Wage				
	(1)	(2)	(3)	(4)	(5)
<u>Ownership Type</u>					
Collectives	----	-0.14(-1.76)*	----	-0.12(-1.59)	-0.08(-0.97)
Private Firms	----	0.07(0.99)	----	0.06(0.80)	0.08(1.05)
<u>Types of Workers</u>					
Out-Commuter	----	----	0.03(0.41)	----	-0.04(-0.42)
Out-Migrant	----	----	0.24(3.35)***	----	0.14(1.65)*
In-Migrant	----	----	0.002(0.02)	----	-0.01(-0.13)
<u>Gender Bias by Sector</u>					
Female*Light Industry	-0.13(-0.50)	----	----	-0.12(-0.45)	-0.07(-0.30)
Female*Heavy Industry	-0.17(-0.58)	----	----	-0.14(-0.47)	-0.04(-0.14)
Female*Mining Industry	-0.23(-0.84)	----	----	-0.22(-0.82)	-0.14(-0.55)
Female*Construction	-0.26(-1.01)	----	----	-0.22(-0.85)	-0.13(-0.49)
Female*Commerce	-0.57(-1.76)*	----	----	-0.54(-1.68)*	-0.49(-1.54)
Female*Transportation	-0.20(-0.79)	----	----	-0.17(-0.60)	-0.16(-0.55)
<u>Gender Bias by Ownership</u>					
Female*Collective	----	0.16(1.42)	----	0.15(1.28)	0.15(1.29)
Female*Private Firms	----	0.09(0.88)	----	0.11(1.00)	0.07(0.67)
<u>Gender Bias by Types of Workers</u>					
Female*Out-Commuter	----	----	-0.07(-0.72)	----	0.03(0.29)
Female*Out-Migrant	----	----	-0.03(-0.34)	----	0.13(1.18)
Female*In-Migrant	----	----	0.01(0.07)	----	0.03(0.26)
Constant	5.48(24.53)***	5.89(55.37)***	5.78(61.76)***	5.54(22.61)***	5.52(23.14)***
Adjusted R ²	0.26	0.25	0.27	0.27	0.29
N	1,083	1,083	1,083	1,083	1,083

Note: T-statistics reported in parentheses are calculated using heteroskedastic-consistent standard errors. In-commuters, service and other sectors, Zhejiang, and state-owned enterprises and other types of firms are left out from the regressions. *, ** and *** indicate significance at 10, 5 and 1 percent respectively.

References

- Becker, Gary. 1971. *The Economics of Discrimination* University of Chicago Press: Chicago, IL.
- Brainerd, Elizabeth. 1998. "Winners and Losers in Russia's Economic Transition," *American Economic Review*. Vol. 88, No. 5 pp. 1094-1116.
- Chan, Anita, Richard Madsen, and Jonathon Unger. 1992. *Chen Village Under Mao and Deng*. University of California Press: Berkeley, CA.
- Croll, Elisabeth. *Changing Identities of Chinese Women: Rhetoric, Experience, and Self-Perception in Twentieth Century China*. Hong Kong UP and Zed Press, London England 1995.
- Dong, Xiao-yuan and Paul Bowles, 2000, "Segmentation and Discrimination in China's Emerging Industrial Labor Market", Working Paper, University of Winnipeg and University of Northern British Columbia.
- Guo Biao Yang, "Barriers to Entry and Industrial Performance in China" *International Review of Applied Economics*, Vol. 12, No. 1, 1998. Pp. 39-51.
- Gustafsson, Bojorn and Shi Li, "Economic Transformation and the Gender Earnings Gap in Urban China", *Journal of Population Economics*, Vol. 13, No.2: 305-329.
- Liu, P. W., X. Meng, and J. Zhang, 2000, "Sector Gender Wage Differentials and Discrimination in the Transitional Chinese Economy," *Journal of Population Economics*, Vol:13, No. 2:305-329.
- Loscocco, Karyn and Christine Bose. 1998. "Gender and Job Satisfaction in Urban China: The Early Post Mao Period," *Social Science Quarterly*. Vol 79, No. 1 (March): 91-109.
- Meng, Xin, 1998, "Male-Female Wage Determination and Gender Wage Discrimination in China's Rural Industrial Sector," *Labour Economics*, Vol.5: 67-89.
- Maurer-Fazio, Margaret and James Hughes, 1999, "The Effect of Institutional Change on the Relative Earnings of Chinese Women: Traditional Values vs. Market Forces," Working Paper, Department of Economics, Bates College, Maine.
- Maurer-Fazio, Margaret, Thomas Rawski, and Wei Zhang. "Inequality in the Rewards for Holding Up Half the Sky: Gender Wage Gaps in China's Urban Labour Market, 1988-1994," *China Journal* No. 41 (January): 55-88.
- Naughton, Barry. *Growing Out of the Plan: Chinese Economic Reform, 1978-1993*, New York: Cambridge University Press, 1995.
- Neumark, David. 1988. "Employer's Discriminatory Behavior and the Estimation of Wage Discrimination," *The Journal of Human Resources* Vol. 23, No. 3, pp. 279-295.
- Oaxaca, Ronald and Michael Ransom. 1994. "On Discrimination and the Decomposition of Wage Differentials," *The Journal of Econometrics* Vol. 61, pp. 5-21.
- Rozelle, Scott. 1996. "Stagnation Without Equity: Changing Patterns of Income and Inequality in China's Post-Reform Rural Economy" *The China Journal* 35 (January):63-96.

Rozelle, Scott, Guo Li, Minggao Shen, Amelia Hughart, and John Giles. 1998. "Leaving China's Farms: Survey Results of New Paths and Remaining Hurdles to Rural Migration." *China Quarterly* No. 158 (June 1999): 367-393.

Skinner, William, 1994, "Differential Development in Lingnan" in Thomas P. Lyons and Victor Nee (eds.) *Development in South China*, Cornell East Asian Studies, Ithaca, NY.

State Statistical Bureau (SSB), *China Statistical Yearbook (Zhongguo Tongji Nianjian)* from 1989 to 1996. Beijing, China: State Statistical Press.