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Abstract

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Key words: gender earnings gap, Vietnam, sectoral location, discrimination
JEL classification: J3, J7, P23

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1. Introduction

The deterioration in labour market outcomes and the polarisation between gender groups within the economy are key issues facing Vietnam at the present time. The impact of sectoral location is of particular importance in Vietnam in the context of the ongoing transition towards a market-oriented economy. The government has been under pressure to reduce the size of the public sector.[1] Moghadam (1994), Standing & Fisher (1993), and Rueschemeyer (1993) and reports of the Non-Government Organisation (NGOs) suggest that a disproportionately large number of women are dismissed from the public sector, state-owned enterprises (SOEs) in particular and have to turn to the private sector. Others argue that more women have left the public sector because they are attracted to the private sector as more economic opportunities have opened up. Regardless whether it is voluntary or involuntary, it is apparent that more and more women are moving into the private sector during the transitional phase. What is the implication of such a change on the gender earnings gap in Vietnam? Will the gender earnings gap widen or narrow?

Focusing on wage earners, this paper extends existing research in several aspects. First, economic theory suggests that the gender wage gap may be caused by employers' tastes that could be shaped by traditional values (Becker 1957; Bergmann 1974; Blau & Beller 1988; Blinder 1973; Gill 1992; Johnson & Solon 1986; Brown, Moon & Zoloth 1980; Oaxaca 1973; Sloane 1990; Sorensen 1989). Studies on wage disparity between males and females have rarely conducted for transitional economies. The quantitative dimensions of the various causes of unequal wages are not well known. Does the degree of marketisation have a role to play? No research has been directed to this issue in Vietnam at all.

Second, this paper applies the decomposition technique of Appleton et al. (1999) which incorporates the impact of sectoral location in addition to the conventional decomposition methods to examine the gender earnings disparities within each sector. Standard decomposition techniques decompose gender earnings gap into differences in returns due to differences in characteristics and differences in returns due to employers'

[1] Public sector refers to both the government sector and the SOEs throughout the paper.

tastes. Yet traditional decomposition methods fail to account for differences in sectoral structures between gender groups. Brown, Moon & Zoloth (1980) propose a decomposition method to account for sectoral differences between males and females. However, their decomposition methods are subjected to index number problem. The method of Appleton et al. (1999) overcomes this problem.

Third, the two Vietnam Living Standards Surveys conducted in 1992-93 and 1997-98 allows this paper to devote special attention to the changes of gender earnings differentials and the changes of sectoral location impact on female labour outcome over time. There has been no study on gender differences in earnings, especially on the factors accounting for changes over time in the earnings gap in Vietnam.

Fourth, the pursuit of this paper is not only important in the Vietnamese context but can also contribute to the emerging body of literature in other transitional economies where increasing inequality in labour outcomes has become apparent. A widening gender earnings gap was reported in Russia during the market reform (Brainerd 1998). Similarly, in their study of urban China, Gustafsson & Li (forthcoming) found that the unexplained part of the gender earnings gap has increased slightly over the post-reform period of 1988 to 1995.[2]

2. Background: Vietnam in transition

A multi-sector economy in transition

Before the 1980s, Vietnam was a centrally planned economy. Under this system, all the economic activities were planned and controlled by the government. Private ownership was considered as 'evil'. State-owned enterprises (SOEs) and co-operatives were the only two types of production units in this era. Raw material was provided by the government and production targets for commodities were set. The outputs produced were sold at planned prices. The labour market was no exception. Based on the overall plan laid down by the government, the number of workers were decided for each

[2] China has been undertaking market reform since 1978.

organisation by respective administrative units. A salary budget was given to each organisation and workers were paid by a pre-determined salary scale.

The inefficiency of the centrally planned system resulted in the collapse of many SOEs, forcing the government to embark on market reform. The extensive economic reform program in 1979 started Vietnam's struggle to resolve the economic crisis resulting from years of central planning. In early 1981, the role of the private sector was implicitly accepted as a legal form of ownership. *Doi Moi*, meaning renovation, unveiled in 1986, represented a significant step in the transformation towards a market-oriented economy. One important feature during the transition has been the development of a multi-sector economy, with the emergence of the private sector that was regarded as evil before the reform. The three sectors, government sector, SOEs and private sector, coexist and reflect different degrees of influence of the Socialist ideology.

Among the three sectors, more women present in public sector compared to men. This is a result of a combination of the following factors. First, the small gender earnings gap in public sector attracts women workers. Second, public sector workers have entitled to maternity leave and better working conditions. Conversely, private sector employees did not enjoy such kinds of benefits until 1995 when the Labour Code was passed. The 1995 Labour Code is the first step as it formalises labour related issues, including special provisions for women labourers in the private sector regarding the working conditions, working hours and maternity leave etc. Third, the lack of effective monitoring system in the public sector means fewer hours and effort required, allowing female public servants to combine their work with their household responsibilities. That is, the over-representation of women in public sector may reflect gender differences in preferences as well as less discriminatory nature of the public sector after controlling for observable characteristics.

As SOEs have been rationalised, some claim that the loss of female labour has been faster than male labour. Some suggest that a disproportionately large number of women are dismissed from the public sector to discrimination. However some argue that it is merely the voluntary act of women to move into private sector, as more opportunities have opened up during the transition.

In sum, during the transitional phase, Vietnam has undergone structural change with the gradual demise of SOEs in particular and the continued emergence of private companies. What are the implications of such a structural change and the flow of female public servants to the private sector on gender earnings differential?

Gender equality in transition

It is well established that institutional arrangements can affect females' economic position (Blau & Kahn 1996; Gregory 1999; Gregory & Daly 1991; Gustafsson & Li). Under Socialism, the State introduced regulations to protect women's rights. With the introduction of constitutional and legal protection and through access to education, health services and employment (Kelly 1994), women's status in Vietnam has improved. The basic policy of the Vietnamese Communist Party, besides introducing regulations to protect women's rights, were to educate people about equality between the sexes in marriage and the labour market and balancing home and work responsibilities including sharing housework between spouses (Fahay 1994; UNIDO 1992). Moreover, the ideology of socialism has placed considerable emphasis on the need to liberate women. Under socialism, women are encouraged to see their entry into the labour force as a normal expectation for every active women, and indeed as a duty to the state and to their families' (Molyneuz 1981:1022). Also, socialist states accept greater responsibility in the provision of support structures for maternity and child-care, free health care and education, housing and welfare benefits generally, serving to increase the female labour participation rate.

In addition to the egaliterian ideology of the Socialism, the relatively balanced gender division of labour in Vietnam than most of the developing countries may be a result of the war (Hainsworth 1993:188). The period of war provided opportunities for women to play prominent roles in society and in the economy, assuming important positions in local communities, government and in the military. Women also attained a high level of literacy and shared in the improvement in living standards.

While over two decades of Socialism has provided a constitutional and legislative framework that promotes equity between men and women, the underlying cultural beliefs and traditions emanating from Confucianism may remain influential. The Confucian

tradition in the family places authority with the husband and family relations are defined on the basis of duty which supersedes individual legal rights. For a woman this means that her duty is as a daughter to her father, as a wife to her husband and as a mother to her eldest son. Women's status is lower than that of men. Sons are more valued than daughters. One Confucian saying states: 'A sonless woman is childless and unhappy in life.' Another Confucian saying is that 'If you have a son, you can say you have a descendant. But you cannot say so even if you have ten daughters."

These traditional culture values may well re-emerge in Vietnam during the transition in response to the liberalisation of the institutional arrangements under Socialism. The emergence of private sector could create conditions for increasing gender disparity as employers could freely choose whom to employ. Employers' taste may discriminate against women if the tradition values prevail and that is, employers' preference has yet been changed over two decades of Socialism. If that is the case, that more women move from the public sector to the private sector may have an adverse impact on the gender earnings differential.

3. Empirical issues

Mincerian earnings equation

I estimated conventional Mincerian log earnings functions for males and females and also separately for the government sector, SOEs, and private sector. Labour market experience is commonly proxied by potential experience defined by Mincer (1974) despite the fact that interrupted experience is not accounted for. Other independent variables include dummies on marital status, migrant status, four occupation groups (agricultural, professional and technicians, labourers, and office workers and trade persons), urban, region (north-south) and ethnic groups (majority-minority). Dummies of the three sectors are included as independent variables for the estimation using the pooled sample.

Decision of working for a particular sector may not be exogenously determined. It may correlate with unobserved characteristics of the individual worker. This paper takes into account the possible effect on earnings of endogenous selection into different

sectors. For each sector, two variants of each specification are reported: one with the Hay two-stage approach to correct for selectivity, one without.

Selectivity

Theoretically these selection biases could be dealt with using the two-stage approach advocated by Hay (1979). This approach is a generalisation of Heckman's approach (1979). In the first stage, a multinominal logit model is used to calculate the correction term, λ_{ij}. This correction term is then included in the earnings equation as an additional regressor in the second stage. The predicted probability P_{ij} from the multinominal logit model is used to compute the correction term λ_{ij}.

$$\boldsymbol{l}_{ij} = \frac{6}{\boldsymbol{P}^2}(-1)^{J+1}\left[\frac{J-1}{J}\ln P_{ij} + \sum_{\substack{k=1 \\ k\neq j}}^{J}\frac{1}{J}\left(\frac{P_{ik}}{1-P_{ik}}\right)\ln P_{ik}\right] \qquad \textit{for } j = 1,\ldots,J$$

where P is the probability that the individual i is in sector j.

The presence of the additional constructed selectivity correction term renders the standard errors not correct. Note that the asymptotic covariance matrix produced by the OLS estimation is inappropriate. They will lead to imprecise statistical inferences. However White's standard errors are used to give asymptotically consistent values in the empirical work (White, 1978).[3]

In the empirical application, the assumption of exogenous selection into the different sectors is relaxed.[4] A multinominal logit model with three categories is specified. They include the government sector, SOEs and private sector. Identification is achieved by including variables, such as number of children, non-labour income, the dependency ratio, and the dummies which captured which sector the household head is working for and whether he or she is a migrant or not. These variables affect participation

[3] White's method has been widely used to obtain consistant estimates of the standard errors of the parameter estimates. See Barrett (1999), Cohen & House (1996) and Haughton & Haughton (1997).

[4] Strictly speaking, there are two other sources of selectivity bias involved. One is originated from the fact that not everyone is working. The other comes from the selective decision to engage in wage employment. This paper focuses on the differences in returns of a wage-earner in one sector from another. Hence, these two types of sample selection bias are dropped from the present analysis for the sake of simplicity.

in a particular sector but not wages. In the second stage, I use the correction term λ_{ij} computed from the multinominal logit model to augment the earnings functions. The inclusion of the correction term ensures that the OLS gives consistent estimates of the augmented earnings functions for the three sectors.

In interpreting the estimation of the augmented earnings equation, the significance of the correction term, λ_{ij}, indicates that the selectivity has led to biased estimates in the OLS. A positive sign of λ_{ij} signals a positive correlation between the unobservable characteristics of an individual that influences his or her choice to work in a particular sector and his or her earnings. A negative sign suggests a negative correlation between the two.

Decomposing gender wage gap

Traditional decompositions: Oaxaca and Neumark

Oaxaca's approach to estimating the gender wage gap is commonly used in the literature. Two separate standard Mincerian log wage equations are estimated for males and females. The Oaxaca decomposition is

$$\ln \overline{w}_m - \ln \overline{w}_f = \boldsymbol{b}_m(\overline{x}_m - \overline{x}_f) + (\boldsymbol{b}_m - \boldsymbol{b}_f)\overline{x}_f$$

where $\overline{w}_m$ and $\overline{w}_f$ are the means of males and females wages respectively; $\overline{x}_m$ and $\overline{x}_f$ are vectors containing the respective means of the independent variables for males and females; and $\boldsymbol{b}_m$ and $\boldsymbol{b}_f$ are the estimated coefficients. The first term on the right hand side captures the wage differential due to different characteristics of males and females. The second term is the wage gap attributable to different returns to those characteristics or coefficients. However Oaxaca's approach is subject to the index number problem. The decomposition results can differ depending on which reference group or which non-discrimination wage structure is used. The gender wage gap can be decomposed in the following way:

$$\ln \overline{w}_m - \ln \overline{w}_f = \boldsymbol{b}_f(\overline{x}_m - \overline{x}_f) + (\boldsymbol{b}_m - \boldsymbol{b}_f)\overline{x}_m$$

Due to the index number problem, researchers have developed various decompositions based on other assumed reference wage structures (Cotton 1988; Oaxaca & Ransom 1988; Oaxaca & Ransom 1994). Neumark (1988) proposes a general decomposition of the gender wage differential.

$$\ln \overline{w}_m - \ln \overline{w}_f = \boldsymbol{b}(\overline{x}_m - \overline{x}_f) + [(\boldsymbol{b}_m - \boldsymbol{b})\overline{x}_m + (\boldsymbol{b} - \boldsymbol{b}_f)\overline{x}_f]$$

where β is the non-discriminatory wage structure. He argues that under discrimination, males are paid competitive wages but females are underpaid. If this is the case, the male coefficients should be taken as the non-discriminatory wage structure. Conversely, if employers pay females competitive wages but pay males more (nepotism), then the female coefficients should be used as the non-discriminatory wage structure.

This decomposition can be reduced to Oaxaca's two special cases if it is assumed that there is no discrimination in the male wage structure i.e. $\boldsymbol{b} = \boldsymbol{b}_m$, or if it is assumed that $\boldsymbol{b} = \boldsymbol{b}_f$ instead. The choice of β becomes critical. Some advocate using the pooled sample to estimate $\boldsymbol{b}$. Neumark shows that $\boldsymbol{b}$ can be estimated using the weighted average of the wage structures of males and females. The first term is the gender wage gap attributable to differences in characteristics. The second and the third terms capture the difference between the actual and pooled returns for men and women respectively.

While Neumark decomposition is attractive, it is not immune from the common criticism of decomposition method in general, namely, omission of variables that affect productivity such as IQ. As a result, the gender wage gap may not automatically attribute to discrimination or nepotism. Also, without evidence on the zero-homogeneity restriction on employer preferences, it is not clear that the pooled coefficient is a good estimator of the nondiscriminatory wage structure (Appleton et al. 1999). In addition, like other conventional decomposition methods, Neumark decomposition fails to account for differences in sectoral structures between gender groups. In Vietnam, the different structures of the government and private sectors, and state-owned enterprises are too an important element to ignore in understanding changes of gender wage gap during the transition.

Full decompositions: Appleton et al. (1999)

Brown, Moon & Zoloth (1980) first develop a decomposition method to take into account the differences of occupational structures between gender groups. However their method is subjected to index number problem as their decomposition bases on Oaxaca's method.

$$\overline{w}_m - \overline{w}_f = \sum_{j=1}^{3} p_{fj}(\overline{w}_{mj} - \overline{w}_{fj}) + \sum_{j=1}^{3} \overline{w}_{mj}(\overline{p}_{mj} - \overline{p}_{fj})$$

where $\overline{p}_{fj}$ and $\overline{p}_{mj}$ denote the proportion of women and men in different sectors.

The subscripts *m*, *f* and *j* denote men, women and the three sectors respectively. The first term represents the gender wage disparities attribute to intrasectoral differences. The second term measures the different in the shares of males and females in different sectors.

The decomposition technique developed by Appleton et al. (1999) take into account sectoral structures. In order to avoid the index number problem, Appleton et al. (1999) adopts an approach analogous to that of Neumark and decomposes the gender wage gap into three components. Since this technique bases on Neumark decomposition, it does not suffer from index number problem as Brown, Moon & Zoloth (1980) do.

$$\overline{w}_m - \overline{w}_f = \sum_{j=1}^{3} \overline{p}^*_j(\overline{w}^*_{mj} - \overline{w}_{fj}) + \sum_{j=1}^{3} \overline{w}_{mj}(\overline{p}_{mj} - \overline{p}^*_j) + \sum_{j=1}^{3} \overline{w}_{fj}(\overline{p}^*_j - \overline{p}_{fj})$$

A multinominal logit model is used to specify the selection process of an individual into different sectors. A pooled multinominal logit model and then separate mutinominal logit models are estimated for men and women.

$$P^*_j = \exp(\gamma^*_j q_i) / \sum_{j=1}^{3} \exp(\gamma^*_j q_i)$$

$$P_{ij} = \exp(\gamma_{ij} q_i) / \sum_{j=1}^{3} \exp(\gamma_{ij} q_i) \qquad i=m, f$$

By estimating a multinominal logit equation separately for men and women, we can derive the average probability for male and female employees in different sectors. These average probabilities are denoted by $\overline{p}^*_{ij}$, where $i = m, f$ and $j = 1,2,3$. The

relationship between γ^* and γ_i are analogue to that of β^* and β_j in Neumark decomposition.

Embedding the self-selection process, the full decomposition can be written in the following form.

$$\begin{aligned}\overline{w}_m - \overline{w}_f &= \sum_{j=1}^{3} \overline{p}_j^* (\overline{x}_{mj} - \overline{x}_{fj}) \boldsymbol{b}_j + \sum_{j=1}^{3} \overline{p}_j^* \overline{x}_{mj} (\boldsymbol{b}_{mj} - \boldsymbol{b}_j) \\ &+ \sum_{j=1}^{3} \overline{p}_j^* \overline{x}_{fj} (\boldsymbol{b}_j - \boldsymbol{b}_{fj}) + \sum_{j=1}^{3} \overline{w}_{mj} (\overline{p}_{mj}^* - \overline{p}_j^*) \\ &+ \sum_{j=1}^{3} \overline{w}_{fj} (\overline{p}_j^* - \overline{p}_{fj}^*) + \sum_{j=1}^{3} \overline{w}_{mj} (\overline{p}_{mj} - \overline{p}_{mj}^*) + \sum_{j=1}^{3} \overline{w}_{fj} (\overline{p}_{fj}^* - \overline{p}_{fj})\end{aligned}$$

The first three terms are equivalent to Neumark decomposition of the within-sector wage differentials. The fourth and fifth terms measure the different earnings due to differences in distribution of male and female employees in different sectors. The last two terms account for differences in earnings due to differences between predicted and actual sectoral compositions of men and women that is not accounted for by differences in characteristics.

4. Empirical results

The Data

The data used in this study are drawn from the two rounds of Vietnam Living Standards Survey (VLSS)[5] conducted by the World Bank and the General Statistical Office of Vietnam. The first round of survey was conducted between 1992 and 1993 -- the first of this kind of national survey ever conducted in Vietnam. It is a self-weighted sample and it surveys 4800 households. It has been widely used for studies on the Vietnamese economy (Desai 1995; Haughton & Haughton 1994; McDonald 1995; Pham Dinh The 1998; Sloper & Le 1995; United Nations 1995; World Bank 1995; World Bank 1996). The second round of Vietnam Living Standards Survey was carried out between

1997 and 1998. The sample for the 1997-98 VLSS was primarily selected from the households selected in the original 150 communes/wards of the 1992-93 VLSS. The sample was increased by 1200 households with these additional households obtained from the sample of the Multi-purpose Household survey (MPHS) which was based on a similar sampling methodology. In order to obtain sufficient sample to disaggregate results into the seven major regions[6] for rural areas and three categories of urban domains[7], the selection of the additional households was chosen so that the total sample of 6000 households oversampled specific domains. Therefore the 1997-98 data must be weighted in order to correct for the bias due to over-sampling.

The sample

The sample that is used in this paper is defined as follows: Wage earners who 1) worked in the 12 months prior to the survey; 2) were aged between 18 and 60 years, inclusive; and 3) supplied earnings data. There are 2036 wage earners in the 1992-93 sample (1173 are males and 863 are females) and 2428 wage earners in the 1997-98 sample (1408 are males and 1020 are females).

Table 1 reports the characteristics of the sample. Not many differences are found in the data using or not using weight. Nonetheless, the discussion will focus on weighted results.

It is apparent that females are over-represented in the public sector in both survey periods. For instance, 53 percent of females either worked in the government sector or for the SOEs in 1992-93, whereas only 39 percent of males were located in the same sectors. Similar pattern is observed for the 1997-98 survey.

While females are over-represented in both survey periods, the percentage of female employees in the public sector fell to 46 percent in 1997-98, though it remains higher than male employees. The drop in the percentage of female public servants is either a response to the downsizing of the public sector or a response to increasing

[5] The Vietnam Living Standards Survey is part of a series of Living Standards surveys conducted in an increasing number of developing countries by the World Bank and the central statistical agencies. The World Bank plans to carry out follow-up surveys on an ongoing basis.
[6] The seven major regions are Northern Uplands, Red River Delta, North Central, Central Coast and Central Highlands.
[7] The three categories of urban domains are Hanoi and Hochiminh City, other cities and other urban areas.

economic opportunities in the private sector. Table 1 also indicates that a higher proportion of males worked for private firms in both years. Nonetheless, the proportion of women worked as employees in the private sector during 1997-98 has risen by seven percent from 1992-93.

On average, employees in the public sector are more educated than employees in the private firms. As indicated in Table 1, 18 percent and 30 percent of the males and females in the government sector have university degree or above in 1992-93. Only less than one percent of the employees in the private sector has the same education. The 1997-98 survey indicates that government employees are still more educated. Nonetheless, the proportion of workers in private sector have university degree or above slightly has increased (1.3 and 1.7 percent for males and females respectively).

In Vietnam, government controlled scholarships and decided on how many graduates from a certain disciplines are needed to fill in government positions. These are the reasons why employees in the public sector tend to be higher educated. Consequently, more employees in the public sector fall into the categories of professionals and skilled workers. In contrast to the public sector, workers in the private sector on average are less educated and most of them have occupations required less skill.

In terms of earnings dispersion, the pooled sample in both surveys indicates that males are paid 20-24 percent higher than female workers. A closer examination of the data reveals that the government sector exhibits the least gender earnings disparity. Rather, male employees in the SOEs and in the private sector are paid higher than female employees. For instance, male workers in private firms are paid 12 percent more than females in 1992-93. The gap has widened to 30 percent in 1997-98.

Mincerian earnings equations

The estimation of the pooled sample is presented in Table A1. Gender dummy is found to be significant. Other things being constant, females earn less than their male counterparts by 19 percent in 1992-93 and 25 percent in 1997-98. Employees of the government sector are rewarded 19 percent less than those of the private sector in 1992-93 and in 1997-98. SOEs employees receive slightly higher earnings than employees of private firms do but the dummy variable is not significant in both years. Chow-type tests

suggest that it would be appropriate to estimate separate earnings equations for three sectors. [8]

Tables A2-A4 report the results for the earnings equation in different sectors in 1992-93 with and without correction for selectivity. And Tables A5-A7 reports the results for 1997-98. Notably, significant gender differences are only evident in the earnings equation for workers in the SOEs and private sector, but not for government employees in both survey periods. This result confirms that gender inequality is least in the sector in which the egalitarian ideology of socialism is put into practice most. The gender earnings gap in the government sector stays narrow, as the economy is moving further towards a market-oriented one. The selectivity correction term is significant for private sector workers in 1992-93 but in 1997-98, it is significant for government employees.

During 1992-93, all three sectors reward education. For instance, return to schooling is 7.4 percent for an additional year of education in the government sector, and 5.4 percent and 2.8 percent for SOEs and the private sector respectively. Potential experience is only found to be significant for the private sector. During 1997-98, education is rewarded slightly less than before. The government sector and SOEs reward an additional year of education in the same way as it did in 1992-93. Returns to schooling 4 percent for private sector compared with that in 1992-1993. In 1997-1998, potential experience is found to be significant for both the government and private sector.

Reported also in Tables A2-A4 for 1992-93 and Tables A5-A7 for 1997-98, gender differences are evident among government employees. Therefore earnings equations for males and females are then estimated separately only for SOEs and the private sector. Results are reported in Tables A8-A9 for 1992-1993 and Tables A10-A11 for 1997-1998.

Returns to schooling are found to be significant for both surveys. In general, females reap a higher return for an additional year of education. For example, the returns to schooling are 3.9 percent for males and 5.7 percent for females in the private sector in

[8] Chow tests were conducted on three sectoral pairs (government sector versus SOEs, government versus private sector, and SOEs verus private sector). The F-statistics for each pair were constructed. They are 3.608, 3.659 and 1.733 respectively. The hypotheses that there are no difference in the wage structures between government sector and SOEs is rejected at a 10 percent significant level. The same holds for government and private sector. For SOEs and private sector, the hypothesis is rejected at a 5 percent level. The results indicate that the earning structures differ from one sector to another.

1992-1993. The returns for males and females show little changes for private sector employees as well as workers in SOEs in 1997-98.

Note that the correction terms are only significant for female employees at the 10 percent level in 1992-1993. None of the correction terms are significant in 1997-1998. As such, decomposition results reported in the section entitled "Traditional decompositions by sectors" are based on the earnings equations without correcting for selectivity.

Decomposition of Appleton et al.

Is sectoral location important in explaining gender earnings disparities? If so, how important? Table 2 shows the full decomposition taking into account the sectoral location of men and women in the three sectors. The decomposition results using the unweighted and weighted data are reported in Table 2. For the purpose of comparison with the 1992-93 data, discussion will focus on weighted one for 1997-98.

The first three terms address the differences in returns due to within sector differences. These three terms are just equivalent to the within sector wage gaps of the Neumark decomposition. They indicate that deviation in male and female returns constitute 80 percent and 129 percent of the earnings differences in 1992-93 and 1997-98 respectively are a consequence of within sector differences. Deviation in female returns is more profound, accounting for more than half of the share in both periods. Overall, similar patterns are evident to the Neumark results.[9] Various methods point to two observations that I could be drawn for the within sector wage disparities.

First, the gender differentials in earnings (nepotism towards men and discrimination against women in Neumark's terminology) are largely a result of differences in returns to employees' characteristics (skill differences in Neumark's terminology). Second, the share of gender wage gap due to differences in returns has at least increased by two-third within the five-year period. One can conclude that both nepotism towards men and discrimination against women is increasingly important during the transition whereas the latter is more noticeable.

The last three terms of the full decomposition tell us what is the share of the gender gap attributed to between sector differences. The negative sum implies that the

[9] The result of Neumark decomposition is reported in Table A12 together with Oaxaca decomposition.

differences in sectoral locations are more favourable to women than men. The gender earnings gap would have been 2 percent wider if men and women were equally distributed across three sectors in 1992-93. This might be because more women relative to men are located in the higher paying public sector where the gender earnings gap is the smallest. As indicated in Table 1, females are over-represented in the public sector in that survey period.

Again, a higher proportion of women is located in the higher-paying public sector in 1997-98. Reported also in Table 2 are the decomposition results of 1997-98. The sum of the last three terms suggests that the gender earnings gaps would have been 11 percent wider if men and women were equally distributed across three sectors. This result implies that sectoral allocation is more important in 1997-98 than in 1992-93. The gender earnings differentials would have been much wider in 1997-98 than in 1992-93 than they otherwise might be. This may be because more women have moved away from the public sector to the private sector as the market reform continues to unfold. As Table 1 indicates that the proportion of women employed in the private sector has risen to 53 percent compared with 46 percent in 1992-93.

In addition, it might be that private sector employers become freer in choosing whom to employ according to their preference which has been shaped by the traditional Confusian values that value women less than men. Aside from the preference of employers as suggested by the theories, the degree of marketisation may also have a role to play. If the degree of marketisation in the private sector may yet to provide employers strong enough incentive to place higher values on employees' characteristics than their own taste towards employees' gender, then women are more likely to be discriminated against. To further investigate why the impact of sectoral location is more important in 1997-98, I could examine three threads.

First, with employers having more autonomy to choose whom to employ, it is suspected that the absolute gender earnings gap might widen in the private sector over time. Second, if marketisation affects employers' choices, it is likely to observe a rise of the share of discrimination in the overall gender earning gap since Vietnam is still in the early stage of marketisation. The share of discrimination is expected to be higher in 1997-98 than in 1992-93 within the private sector. Third, the share of discrimination should

account for more of the gender earnings gap in the private sector than among SOEs.[10] Next section will investigate these issues by applying the conventional decomposition on the separate earnings equations for the employees of SOEs and private firms.

In sum, the full decomposition accounts for the over-representation of women in the public sector. The results imply that the increasing pace of females moving from the public sector to the private sector would widen the gender earnings differentials. The impact of sectoral location has become more important after a decade of implementation of *Doi Moi*.

Traditional decompositions by sectors

Keeping the three threads in mind, Tables 3-4 report the conventional decomposition results separately for SOEs and private enterprises.

First, for private sector, there is an increase of 66 percent in the absolute log earnings gap between males and females over the five-year period after deflating the log earnings in 1997-98.

Second, Oaxaca and Neumark decompositions suggest that regardless of which wage structure be used, discrimination accounts for most of the gender earnings differentials in both survey periods. More importantly, the share of discrimination has accounted for more of the gender earnings disparities in 1997-98 than in 1992-93. From Neumark's interpretation, both nepotism towards men and discrimination against women has become more important in explaining gender earnings differentials in 1997-98, whereas the latter is more noticeable.

Third, while differences in return remain an important source of discrimination across the private sector and SOEs, it increasingly accounts for more of the differences in earnings between men and women in the private sector than among SOEs over time.

The results from the conventional methods and the full decomposition highlight the dynamic of transition towards a market economy. Employers' preference, the degree

[10] Liu, Meng & Zhang (forthcoming) found increasing gender wage differentials in absolute terms from the state sector to the private sector in Shanghai, China but they show that the relative share of discrimination in the overall gender wage differential declines substantially from the state to the private sector. They argue that the decline of the relative share of discrimination is due to the degree of marketisation in the private

of marketisation and the changing sectoral location of female workers intertwine and adversely affect female workers.

Conclusions

The main purpose of this paper was to analyse the male-female earnings gap in Vietnam, with special emphasis on the role of sectoral location in gender earnings differences. I have used two surveys that were conducted in the early reform period, 1992-93, and five years after, 1997-98. These periods are also ones in which Vietnam has been undergoing structural changes: the reduction in the size of the public sector and the growth of the private sector that was considered as evil before market reform. Noticeably more and more female workers have been moving from the public sector into the private sector. It could be a response either to the retrenchment from the public sector or to the increasing economic opportunities in the private sector. The location aspect of gender earnings differentials is of interest in its own right and also because of the possible implications for gender differences in earnings.

This paper has employed Appleton et al. (1999) decomposition technique. His method takes into account the impact of sectoral location on gender earnings differences, whereas conventional decompositions of gender earnings differences do not take that into consideration.

This paper yields four main conclusions: 1) Gender earnings gap due to locational differences has been negative in 1992-93 and 1997-98. This implies that the differences in sectoral locations are more favourable to women than men. These favourable sectoral location differences could be attributed to the over-representation of females in the public sector that could be a result of the non-discriminatory nature of the public sector as well as the preferences of females. 2) Location differences are found to be more important in 1997-98 than in 1992-93. In 1997-98, the gender earnings gap would have been widened by 11 percent if females were not disproportionately located in the public sector. 3) To examine further why it is so, this paper applies the Oaxaca and Neumark decompositions to earnings equations of the SOEs and the private sector. Three observations have been

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sector under which employers have an incentive to value human capital characteristics related to

drawn. First, the absolute gender gap in log has increased in the private sector over time. Second, both the Oaxaca and Neumark decompositions have indicated that the share of discrimination in the private sector has increased over time. Third, the share of discrimination has increasingly accounted for more males-females earnings gap in the private sector than among SOEs. 4) As a result of the evidence presented above, more women from public sector seek employment in the private sector during the transition may have an adverse implication on the gender earnings differentials via three channels. First, the change in distribution of females in the sectoral structure: the over-representation of females in the public sector in which the gender earnings gap is most narrow gradually dissipates. Second, employers are freer to choose whom to employ due to further liberalisation and their preferences may work against females. This suggests that more than two decades of central planning has not changed the social attitude towards women. When such institutional arrangements have been gradually removed, the traditional Confucian values re-emerge. Third, with the private sector still at the early stage of development, the degree of marketisation has yet to provide strong enough incentive for employers to reward productivity-related characteristics of employees.

productivity more than their own taste towards the gender of their workers.

Data Appendix

Mincerian earnings equation

Dependent variable

Hourly earnings rate of the main job over a 12 months period in logarithm. It includes cash and in-kind payment.

Independent variables

Potential experience: Age minus years of schooling minus six (the official school entrance age)

Potential experience^2: The square term of potential experience divided by 100

Occupation dummies: 1) Agriculture, fishery, hunting, forestry and animal husbandary: base group; 2) Professional, technical and leaders of the Party, government, unions and SOEs; 3) Clerical, sales and service work; 4) Skill and unskill labourers: production and related fields, transport equipment operation, and other labouring jobs

Migrant: If a person was not born in the district that he or she was living in at the time of the interview, the migrant dummy coded as one, zero otherwise.

Married: A person who is married, divorced, widow or widower is coded as one, zero otherwise.

North: The North is coded as one. It includes the northern mountainous regions, Red River Delta and the north central region. The South refers to the central coast region, central highlands, southeast, and the Mekong Delta.

Urban: Urban area is coded as one and rural area is coded as zero.

Majority: In Vietnam, Kinh is the major ethnic group and makes up 87 percent of the population. Minorities include Chinese, Thai, Khome, Mung, Dao, Tay, Huong, H'mong. A person belonging to the Kinh ethnic group is coded one, zero otherwise.

Multinominal logit selection equation

Dependent variable

Three catogories: government employees, SOEs workers and private sector employees

Independent variables

Dependency ratio: The number of household members who did not work in the previous 12 month prior to the interview to the household size.

Number of children: Number of children borne to an individual household member

Non-labour income (In thousand dong): The total annual non-labour household income includes sources such as 1) social fund (pension, disability etc.) from the government; 2) social subsidies from organisation and production units; 3) interest income on saving, stock and loans; 4) claims paid by insurance; 5) gifts including those related to wedding, funerals, and birthdays, both in cash and in kinds; 6) dowry or brideprice, inheritance; 7) lottery winnings; 8) income from lease of buildings, equipment, houses, land, draft animals; 9) income from lease of durable goods, every utensils; 10) income from selling buildings, equipment; 11) income from selling vehicles; 12) sale of durable goods; 13) sale of jewellery; 14) remittances received.

Dummy variables such as migrant, married, north, urban are defined as in the earnings equation. Extra variables are included for identification. They are:

Household head's sectoral location: Dummy variables for household head if his or her main job in the previous 12 months prior to the interview is in: 1) the government sector; 2) the SOEs and cooperatives; 3) private sector. The reference group is those household heads who was self-employed in the previous 12 month period.

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Table 1 Sample characteristics

	1992-1993		1997-1998 (unweighted)		1997-1998 (weighted)	
	Males	Females	Males	Females	Males	Females
% of individuals employed: Government	17.28	30.85	20.10	24.90	20.07	24.85
SOEs	22.12	22.54	16.55	21.57	16.88	21.51
Private sector	60.60	46.61	63.35	53.53	63.05	53.63
Education (percent)						
Government sector						
Primary education	5.73	16.97	6.31	2.89	5.62	2.37
Lower secondary	13.98	17.98	17.98	18.18	19.94	19.5
Secondary education	15.41	13.11	47.32	51.65	30.32	33.78
Vocational education	46.24	22.1	19.56	25.21	19.68	27.51
University	18.64	29.96	26.81	20.25	24.44	16.85
SOEs						
Primary education	25.47	23.62	9.68	19.49	9.14	18.66
Lower secondary	32.55	31.50	28.23	22.05	29.45	22.40
Secondary education	11.79	11.02	28.23	31.28	27.81	32.80
Vocational education	25.47	25.98	17.34	17.44	20.62	16.27
University	4.72	7.87	16.53	9.74	12.98	9.87
Private sector						
Primary education	75.34	68.21	55.78	63.63	55.95	65.31
Lower secondary	15.85	21.95	24.04	21.05	26.10	20.58
Secondary education	5.28	6.11	13.56	10.53	12.06	9.97
Vocational education	3.52	2.99	4.93	2.63	4.59	2.48
University	0.00	0.75	1.69	2.15	1.30	1.67
Mean of log wages: All	-0.111	-0.354	-0.746	-0.546	0.702	0.501
Government	-0.302	0.249	0.767	0.745	0.706	0.694
SOEs	0.006	-0.329	0.916	0.654	0.890	0.640
Private sector	-0.255	-0.375	-0.693	-0.399	-0.655	-0.356

Table 2 Full decomposition of gender wage gap

		1992-1993		1997-1998 (unweighted)		1997-1998	
		Gap	Percent	Gap	Percent	Gap	Percent
1992-1993: $\ln \overline{W}_m$	-0.111						
$\ln \overline{W}_f$	-0.354	0.242					
1997-1998: $\ln \overline{W}_m$	-0.746						
$\ln \overline{W}_f$	-0.546	0.200					
1997-1998: $\ln \overline{W}_m$	0.702						
(weighted) $\ln \overline{W}_f$	0.501	0.201					
Earnings differences due to within sector differences							
Characteristics (1)		0.050	20.85	-0.028	-13.97	-0.038	-18.50
Deviation in male returns (2)		0.068	28.54	0.095	46.34	0.093	45.75
Deviation in female returns (3)		0.125	52.40	0.161	78.85	0.171	83.92
Earnings differences due to between sector (sectoral location) differences							
Characteristics (4) + (5)		-0.001	-0.41	-0.039	-19.15	-0.008	-3.95
Deviation due to different in Characteristics on male sectoral location (6)		0.017	7.27	-0.006	-3.05	-0.009	-4.71
Deviation due to different in Characteristics on female sectoral location (7)		-0.021	-8.66	0.022	10.97	-0.005	-2.50

Table 3 Conventional decomposition of gender wage gap in state-owned enterprises

		1992-1993		1997-1998 (unweighted)		1997-1998	
		Gap	Percent	Gap	Percent	Gap	Percent
1992-1993: $\ln \overline{W}_m$	0.006						
$\ln \overline{W}_f$	-0.329	0.335					
1997-1998: $\ln \overline{W}_m$	0.916						
$\ln \overline{W}_f$	0.654	0.262					
1997-1998: $\ln \overline{W}_m$	0.890						
(weighted) $\ln \overline{W}_f$	0.640	0.250					
Oaxaca							
Male wage structure							
Characteristics		0.101	30.32	0.109	41.68	0.105	42.21
Returns		0.234	69.78	0.153	58.31	0.145	57.79
Female wage structure							
Characteristics		0.056	16.85	0.054	20.65	0.024	9.59
Returns		0.279	83.15	0.208	79.35	0.226	90.41
Neumark							
Weighted wage structure							
Skill difference		0.075	22.44	0.081	30.87	0.064	25.54
Male advantage		0.098	29.16	0.074	28.32	0.071	28.26
Female disadvantage		0.162	48.40	0.107	40.81	0.116	46.20

Table 4 Conventional decomposition of gender wage gap in private enterprises

		1992-1993		1997-1998 (unweighted)		1997-1998	
		Gap	Percent	Gap	Percent	Gap	Percent
1992-1993: $\ln \overline{W}_m$	-0.255						
$\ln \overline{W}_f$	-0.375	0.120					
1997-1998: $\ln \overline{W}_m$	-0.693						
$\ln \overline{W}_f$	-0.399	0.293					
1997-1998: $\ln \overline{W}_m$	-0.655						
(weighted) $\ln \overline{W}_f$	-0.356	0.298					
Oaxaca							
Male wage structure							
Characteristics		0.025	7.41	-0.078	-26.61	-0.071	-23.93
Returns		0.307	92.59	0.371	126.61	0.370	123.93
Female wage structure							
Characteristics		0.049	14.78	-0.077	-26.29	-0.088	-29.35
Returns		0.283	85.22	0.370	126.29	0.386	129.35
Neumark							
Weighted wage structure							
Skill difference		0.041	12.27	-0.077	-26.41	-0.081	-27.29
Male advantage		0.104	31.48	0.141	48.07	0.093	31.06
Female disadvantage		0.187	56.24	0.230	78.34	0.349	96.24

Appendix

Table A1 Results of earnings equation (pooled sample)

Independent variables	1992-93		1997-98 (unweighted)	
	Coefficients	t-ratio	Coefficients	t-ratio
Potential experience	0.036	**4.792**	0.029	**5.195**
Potential experience^2	-0.059	**-3.479**	-0.057	**-4.649**
Gender	0.190	**4.208**	0.254	**8.647**
Married	0.057	1.052	0.028	0.706
Migrant	-0.047	-0.980	-0.123	**-2.839**
Years of schooling	0.048	**5.911**	0.049	**8.050**
Urban	0.084	*1.702*	0.211	**3.808**
North	-0.472	**-9.554**	-0.390	**-6.816**
Majority	-0.209	**-2.716**	-0.084	-1.270
Government	-0.199	**-2.495**	-0.237	**-3.691**
SOEs	0.001	0.013	0.028	0.612
Professionals	0.050	0.459	0.369	**2.355**
Office/trade workers	-0.046	-0.460	0.132	0.851
Labourer	0.152	**2.147**	0.155	1.052
Constant	-0.878	**-6.619**	-0.208	-1.186
No. of observations	1458		2431	
Adjusted R^2	0.14		0.22	
F-statistics	17.38		22.06	

Table A2 Results of earnings equation for government employees in 1992-93

	Without selectivity correction		With selectivity correction	
Independent variables	Coefficients	t-ratio	Coefficients	t-ratio
Potential experience	0.006	0.395	-0.008	-0.457
Potential experience^2	0.038	1.073	0.059	1.212
Gender	-0.112	-1.222	0.020	0.214
Married	-0.161	-1.414	-0.053	-0.412
Migrant	-0.086	-1.050	-0.237	**-2.411**
Years of schooling	0.074	**4.647**	0.058	**3.165**
Urban	-0.010	-0.120	0.022	0.202
North	-0.328	**-3.989**	-0.243	**-2.389**
Majority	-0.254	-1.472	-0.109	-0.796
Professionals	0.639	**3.194**	0.958	**3.677**
Office/trade workers	0.782	**4.275**	1.002	**4.206**
Labourer	0.935	**4.074**	1.176	**4.258**
Lamda			0.106	0.708
Constant	-1.564	**-4.978**	-1.717	**-4.542**
No. of observations	332		187	
Adjusted R^2	0.1729		0.2226	
F-statistics	9.34		7.42	

Table A3 Results of earnings equation for SOEs employees in 1992-93

	Without selectivity correction		With selectivity correction	
Independent variables	Coefficients	t-ratio	Coefficients	t-ratio
Potential experience	0.019	1.209	0.030	1.309
Potential experience^2	-0.015	-0.381	-0.034	-0.695
Gender	0.256	**3.006**	0.195	*1.827*
Married	0.109	0.988	0.013	0.076
Migrant	-0.005	-0.055	-0.137	-1.139
Years of schooling	0.054	**4.000**	0.053	**2.914**
Urban	0.222	**2.191**	0.368	**2.882**
North	-0.786	**-8.170**	-0.763	**-5.981**
Majority	-0.267	-1.284	0.032	0.095
Professionals	0.119	0.628	0.126	0.498
Office/trade workers	-0.035	-0.152	-0.200	-0.614
Labourer	0.319	**1.891**	0.331	1.481
Lamda			0.080	0.715
Constant	-0.922	**-3.238**	-1.209	**-2.734**
No. of observations	325		190	
Adjusted R^2	0.3032		0.3539	
F-statistics	13.52		8.40	

Table A4 Results of earnings equation for private sector employees in 1992-93

	Without selectivity correction		With selectivity correction	
Independent variables	Coefficients	t-ratio	Coefficients	t-ratio
Potential experience	0.050	**4.281**	0.055	**2.942**
Potential experience^2	-0.094	**-3.981**	-0.099	**-2.829**
Gender	0.288	**4.338**	0.342	**3.409**
Married	0.110	1.417	-0.011	-0.084
Migrant	-0.051	-0.678	-0.227	**-2.147**
Years of schooling	0.030	**2.520**	0.028	*1.693*
Urban	0.054	0.757	-0.041	-0.395
North	-0.343	**-4.298**	-0.259	**-2.476**
Majority	-0.199	**-2.021**	-0.217	-1.394
Professionals	0.326	1.075	0.142	0.426
Office/trade workers	-0.047	-0.356	-0.178	-1.044
Labourer	0.140	1.615	0.054	0.476
Lamda			-0.295	**-2.272**
Constant	-0.949	**-5.168**	-0.791	**-2.696**
No. of observations	801		426	
Adjusted R^2	0.1204		0.1195	
F-statistics	10.25		5.1	

Table A5 Results of earnings equation for government employees in 1997-98

	Without selectivity correction		With selectivity correction	
Independent variables	Coefficients	t-ratio	Coefficients	t-ratio
Potential experience	0.041	**3.927**	0.031	**2.665**
Potential experience^2	-0.067	**-2.663**	-0.055	**-2.030**
Gender	0.021	0.368	0.052	0.798
Married	-0.036	-0.465	-0.049	-0.540
Migrant	-0.164	**-2.651**	-0.167	**-2.460**
Years of schooling	0.078	**5.724**	0.067	**4.009**
Urban	0.185	**2.095**	0.239	**2.334**
North	-0.246	**-3.325**	-0.247	**-3.095**
Majority	-0.041	-0.343	0.058	0.439
Professionals	-0.134	-1.143	-0.124	-0.782
Office/trade workers	-0.350	**-2.436**	-0.417	-2.258
Labourer	0.149	0.888	0.192	0.961
Lamda			0.251	*1.951*
Constant	-0.442	*-1.820*	-0.213	-0.697
No. of observations	539		459	
Adjusted R^2	0.2465		0.2763	
F-statistics	10.5		9.94	

Table A6 Results of earnings equation for SOEs employees in 1997-98

	Without selectivity correction		With selectivity correction	
Independent variables	Coefficients	t-ratio	Coefficients	t-ratio
Potential experience	0.013	0.859	0.017	1.122
Potential experience^2	-0.012	-0.383	-0.025	-0.758
Gender	0.183	**3.265**	0.184	**3.213**
Married	0.189	**2.056**	0.124	1.192
Migrant	-0.224	**-2.801**	-0.172	**-2.004**
Years of schooling	0.051	**4.028**	0.045	**3.148**
Urban	0.161	*1.792*	0.257	**2.264**
North	-0.537	**-6.608**	-0.618	**-6.696**
Majority	-0.172	-0.941	-0.222	-0.915
Professionals	0.125	0.807	0.144	0.884
Office/trade workers	-0.098	-0.680	-0.090	-0.566
Labourer	-0.036	-0.298	-0.042	-0.320
Lamda			0.027	0.264
Constant	0.271	1.059	0.362	1.114
No. of observations	455		354	
Adjusted R^2	0.332		0.3686	
F-statistics	11.15		12.17	

Table A7 Results of earnings equation for private sector employees in 1997-98

Independent variables	Without selectivity correction		With selectivity correction	
	Coefficients	t-ratio	Coefficients	t-ratio
Potential experience	0.025	**3.222**	0.023	**2.686**
Potential experience^2	-0.053	**-3.421**	-0.053	**-3.186**
Gender	0.387	**10.010**	0.387	**8.022**
Married	0.048	0.875	0.083	1.247
Migrant	-0.051	-0.835	-0.070	-1.074
Years of schooling	0.041	**5.733**	0.036	**4.152**
Urban	0.182	**2.816**	0.228	**3.203**
North	-0.427	**-6.040**	-0.378	**-5.279**
Majority	-0.080	-1.087	-0.026	-0.303
Professionals	0.839	**4.229**	0.861	**3.984**
Office/trade workers	0.413	**2.242**	0.419	**2.349**
Labourer	0.248	1.465	0.269	*1.703*
Lamda			0.127	1.096
Constant	-0.339	*-1.643*	-0.365	*-1.815*
No. of observations	1437		1091	
Adjusted R^2	0.21		0.202	
F-statistics	16.13		10.72	

Table A8 Results of earnings equation for SOEs employees in 1992-93

Independent variables	Without selectivity correction				With selectivity correction			
	Males		Females		Males		Females	
	Coef.	t-ratio	Coef.	t-ratio	Coef.	t-ratio	Coef.	t-ratio
Potential experience	0.009	0.382	0.030	1.563	0.019	0.601	0.045	1.484
Potential experience^2	-0.004	-0.063	-0.027	-0.599	-0.019	-0.285	-0.055	-0.896
Married	0.100	0.535	0.125	0.984	0.057	0.234	-0.127	-0.537
Migrant	-0.111	-0.930	0.179	1.411	-0.230	-1.615	0.150	0.793
Years of schooling	0.044	**2.368**	0.061	**2.654**	0.050	**2.133**	0.059	*1.807*
Urban	0.146	1.062	0.327	**2.523**	0.335	**2.020**	0.378	*1.944*
North	-0.762	**-5.414**	-0.827	**-7.191**	-0.689	**-4.077**	-0.858	**-4.523**
Majority	-0.342	-1.347	0.151	0.478	0.215	0.582	-0.666	*-1.897*
Professionals	0.168	0.684	-0.052	-0.204	0.161	0.525	-0.366	-1.092
Office/trade workers	-0.139	-0.473	-0.103	-0.342	-0.275	-0.689	-0.618	-1.397
Labourer	0.432	**2.092**	0.032	0.141	0.470	*1.874*	-0.434	-1.513
Lamda					-0.136	-0.713	0.365	*1.811*
Constant	-0.320	-0.880	-1.457	-3.648	-1.138	**-2.386**	0.000	0.000
No. of observations	192		136		121		72	
Adjusted R^2	0.2638		0.3654		0.3738		0.3533	
F-statistics	7.00		8.71 (11, 124)		6.44		6.92 (11, 59)	

Table A9 Results of earnings equation for private sector employees in 1992-93

	Without selectivity correction				With selectivity correction			
	Males		Females		Males		Females	
Independent variables	Coef.	t-ratio	Coef.	t-ratio	Coef.	t-ratio	Coef.	t-ratio
Potential experience	0.050	**3.359**	0.026	1.351	0.048	**2.194**	0.041	1.325
Potential experience^2	-0.083	**-2.886**	-0.019	-0.424	-0.079	**-1.966**	-0.046	-0.726
Married	0.112	1.076	0.152	1.148	-0.013	-0.076	-0.093	-0.360
Migrant	-0.044	-0.493	0.219	*1.657*	-0.227	*-1.847*	0.219	1.074
Years of schooling	0.027	**1.985**	0.058	**2.534**	0.039	**1.992**	0.057	*1.725*
Urban	0.044	0.496	0.324	**2.469**	-0.070	-0.547	0.383	*1.942*
North	-0.388	**-4.111**	-0.867	**-7.329**	-0.332	**-2.712**	-0.910	**-4.543**
Majority	-0.184	-1.467	0.169	0.528	-0.180	-0.963	-0.600	*-1.715*
Professionals	0.396	1.143	-0.038	-0.145	0.184	0.465	-0.342	-1.031
Office/trade workers	0.020	0.093	-0.075	-0.248	-0.067	-0.246	-0.558	-1.281
Labourer	0.234	**2.316**	0.015	0.064	0.108	0.879	-0.446	-1.619
Lamda					-0.151	-0.872	0.353	*1.739*
Constant	-0.754	**-3.214**	-1.442	**-3.593**	-0.523	-1.510	-0.083	-0.120
No. of observations	526		133		299		69	
Adjusted R^2	0.1141		0.3751		0.0927		0.3751	
F-statistics	6.08		8.72		3.02		8.72	

Table A10 Results of earnings equation for SOEs employees in 1997-98

	Without selectivity correction				With selectivity correction			
	Males		Females		Males		Females	
Independent variables	Coef.	t-ratio	Coef.	t-ratio	Coef.	t-ratio	Coef.	t-ratio
Potential experience	-0.004	-0.203	0.017	0.807	-0.007	-0.286	0.028	1.810
Potential experience^2	-0.002	-0.050	0.015	0.340	-0.005	-0.113	-0.003	-0.087
Married	0.229	1.548	0.222	2.027	0.292	1.485	0.063	0.501
Migrant	-0.342	-3.628	-0.083	-0.709	-0.276	-2.329	-0.064	-0.614
Years of schooling	0.041	2.354	0.059	3.216	0.044	1.993	0.045	2.510
Urban	0.203	1.751	0.099	0.927	0.209	1.458	0.284	2.329
North	-0.446	-4.135	-0.640	-6.999	-0.578	-4.941	-0.658	-6.391
Majority	-0.338	-1.443	0.017	0.059	-0.472	-1.586	0.219	0.555
Professionals	0.305	1.573	-0.042	-0.194	0.314	1.437	-0.080	-0.370
Office/trade workers	-0.034	-0.185	-0.150	-0.746	0.050	0.237	-0.202	-0.912
Labourer	0.109	0.665	-0.168	-1.178	0.097	0.498	-0.172	-1.185
Lamda					0.017	0.172	-0.002	-0.014
Constant	0.833	2.532	-0.036	-0.097	0.978	2.396	-0.233	-0.485
No. of observations	236		219		182		170	
Adjusted R^2	0.316		0.3903		0.2459		0.4501	
F-statistics	6.79		10.72		5.92		7.21	

Table A11 Results of earnings equation for private sector employees in 1997-98

	Without selectivity correction				With selectivity correction			
	Males		Females		Males		Females	
Independent variables	Coef.	t-ratio	Coef.	t-ratio	Coef.	t-ratio	Coef.	t-ratio
Potential experience	0.023	2.698	0.025	2.032	0.019	2.037	0.025	1.633
Potential experience^2	-0.046	-2.612	-0.056	-2.224	-0.040	-2.170	-0.062	-2.126
Married	0.076	1.320	0.008	0.087	0.103	1.554	0.054	0.453
Migrant	-0.057	-0.855	-0.035	-0.340	-0.084	-1.084	-0.045	-0.417
Years of schooling	0.032	3.881	0.055	4.929	0.032	3.518	0.045	2.943
Urban	0.149	2.169	0.238	2.620	0.179	2.608	0.308	2.824
North	-0.421	-6.185	-0.443	-3.733	-0.391	-5.637	-0.336	-2.527
Majority	0.031	0.421	-0.225	-1.913	0.048	0.542	-0.148	-0.982
Professionals	0.846	3.939	0.864	2.865	0.899	4.010	0.762	2.211
Office/trade workers	0.390	2.286	0.439	1.687	0.530	3.369	0.252	0.884
Labourer	0.209	1.349	0.311	1.270	0.320	2.442	0.143	0.554
Lamda					0.138	1.447	0.181	0.734
Constant	0.048	0.242	-0.371	-1.149	-0.026	-0.143	-0.225	-0.601
No. of observations	891		546		701		390	
Adjusted R^2	0.1835		0.2018		0.1821		0.1694	
F-statistics	8.62		7.00		7.55		4.31	

Table A 12 Conventional decomposition of gender wage gap

		1992-1993		1997-1998 (unweighted)		1997-1998	
		Gap	Percent	Gap	Percent	Gap	Percent
1992-1993: $\ln \overline{W}_m$	-0.111						
$\ln \overline{W}_f$	-0.354	0.243					
1997-1998: $\ln \overline{W}_m$	0.746						
$\ln \overline{W}_f$	0.546	0.200					
1997-1998: $\ln \overline{W}_m$	0.702						
(weighted) $\ln \overline{W}_f$	0.501	0.201					
Oaxaca							
Male wage structure							
Characteristics		0.014	6.04	-0.064	-31.95	-0.067	42.21
Returns		0.228	93.96	0.264	131.95	0.268	57.79
Female wage structure							
Characteristics		0.086	35.65	-0.040	-19.83	-0.046	9.59
Returns		0.156	64.34	0.240	119.83	0.248	90.41
Neumark							
Weighted wage structure							
Skill difference		0.057	23.67	-0.050	-24.92	-0.055	-27.45
Male advantage		0.092	38.02	0.111	55.43	0.112	55.93
Female disadvantage		0.093	38.31	0.139	69.49	0.144	71.52

Figures 1 and 2 show that over half of the wage workers were located in the private sector in 1992-93. Out of 63 percent of these private sector employees were males. During that period, 26 percent of the wage workers were employed in the government sector. Over half of them were females. The pattern of the distribution of the wage employees in 1997-98 is similar to that of 1992-93. Over half of the wage employees worked for private firms and males remain the majority within private sector. Disaggregating the data by different gender groups indicates that the representation of females has fallen in the public sector but has risen in the private sector compared with that in 1992-93. Summary statistics of the two samples are presented in Table 2.

[Figure 1] Distribution of wage workers in 1992-93 and 1997-98, by sector

[Figure 2] Distribution of wage workers in 1992-93 and 1997-98, by gender and sector

Changes of gender earnings differentials

As illustrated in Table 1, for all workers, the ratio of female to male hourly earnings ratio has been greater (from 71 percent in 1992-93 to 84 percent in 1997-98), reflecting a decline in earnings gap observed during that five years. Earnings gap between gender groups remain the narrower in the government sector. These changes in earnings do not control for changes in the characteristics, such as age, experience, and education, of the male and female workers, changes that could affect the earnings gap.

[Table 1] Female-male earnings ratio in 1992-93 and 1997-98

Figure 1 Distribution of wage workers in 1992-92, by sector

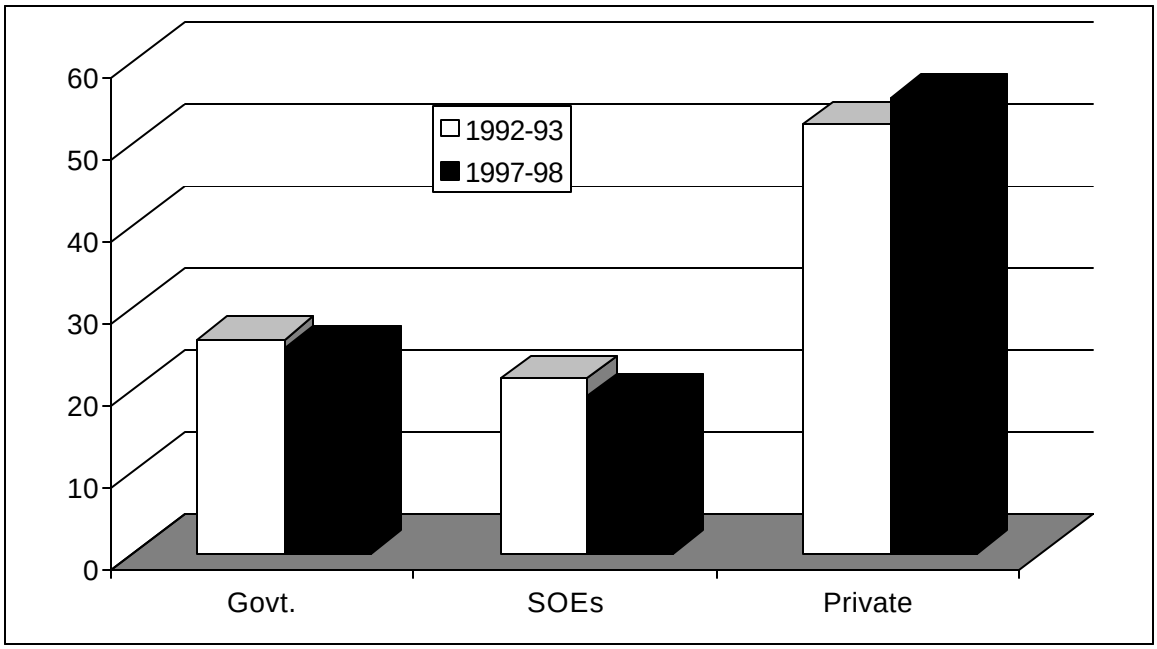
60
50
40
30
20
10
0
1992-93
1997-98
Govt.
SOEs
Private

Figure 2 Distribution of wage workers in 1992-93, by gender and sector

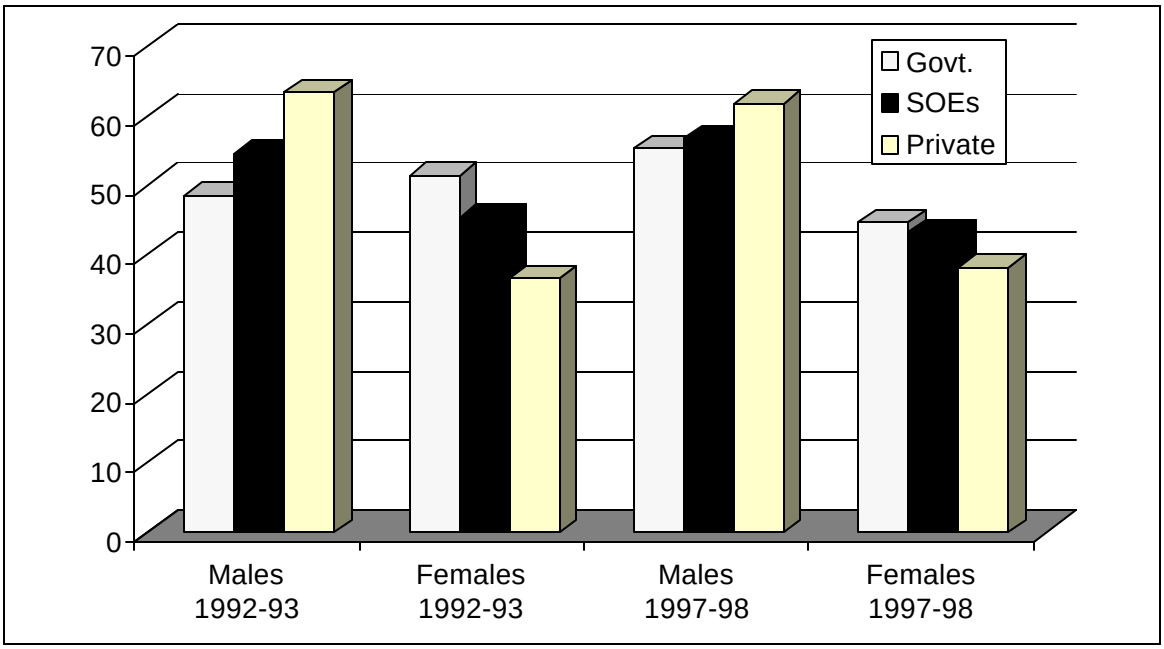

Table 1 Female-male earnings ratio, 1992-93 and 1997-98

	1992-1993	1997-1998	1997-1998 (weighted)
All	0.709	0.842	0.845
Government sector	0.894	0.922	0.916
SOEs	0.583	0.758	0.758
Private sector	0.690	0.822	0.825

For SOEs, the gender differentials in log earnings have fallen by 47 percent from 0.335 in 1992-93 in absolute term between two survey periods.[11] In 1992-93, the Oaxaca method with different wage structures points to the same results: the differences in return account for most of the gender wage gap. From Neumark's interpretation, one can also conclude that both nepotism toward men and discrimination against women together accounts for most of the gender earnings differentials. Nonetheless, discrimination

[11] The author acknowledges the help of Ms. Sarah Bales, the VIE/95/043 Coordinator, in providing the price deflator necessary for the comparison of log earnings over time.

against women is more important in explaining the wage gap than nepotism towards men. Similar results can be derived for 1997-98.

Note that within SOEs, the share of discrimination has fallen between 1992-93 and 1997-98 as indicated by the Oaxaca decomposition. One of the advantages of the Neumark method over that of Oaxaca is that it allows a closer examination of the source as it separates the male advantage from the female disadvantage. Following Neumark, while the share due to nepotism towards men stay more or less the same, the share accounted for by the female disadvantage falls by 8 percent. The fall in the share of discrimination towards female is now absorbed by the rise in the share of skill differences between men and women in 1997-98.