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Gender wage gap in Vietnam: 1993 to 1998

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Using the Vietnam Living Standards Surveys of 1992–1993 and 1997–1998, we examine changes in the gender wage gap. Following the method of Juhn, Murphy and Brooks [Marvin H. Koster (Ed.), *Workers and Their Wages: Changing Patterns in the United States*, American Enterprise Institute Press, Washington, DC, p. 107], the intertemporal decomposition indicates that changes in observed variables, skill prices, and wage inequality narrow the gap. However, the gap effect has tended to increase the gender wage difference so that the net effect is relatively unchanged. This finding contrasts with that for East European countries but is consistent with the experience in China. Improving education about equity practices in the workplace to combat discriminatory attitudes and further decentralization to facilitate the growth of the private sector are two policy implications. *Journal of Comparative Economics* 32 (3) (2004) 586–596. International and Development Economics, National Centre for Development Studies, Asian Pacific School of Economics and Government, Australian National University, Canberra, ACT 0200, Australia.

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1. Introduction

Several forces are responsible for the increasing wage inequality in transitional economies. The abolition of centrally determined wages, which limited inequality between men and women under a central planning regime, is likely to increase gender wage inequality. Employers also enjoy increased autonomy to reward workers according to their productivity. If men are more educated and more experienced than women, females will be disadvantaged by the higher returns to education and experience during the transition. Furthermore, employers can use their freedom to penalize female workers in accordance with their taste for discrimination (Oaxaca, 1973).¹ However, discriminating against workers based on non-economic characteristics, such as gender, is costly in competitive markets. Hence, a more competitive market should reduce the gender wage gap. Our purpose is to separate these forces and their effects and to examine the change in women's wages in Vietnam during its transition period.

The collapse of many state-owned enterprises (SOEs) led to the introduction of market reform, *Dot Moi*, in 1986. Vietnam's transition can be divided into two phases, namely, 1986 to 1991 and 1992 to the present. The first phase involved substantial structural change as total state employment fell by about 250,000 persons per year. Unemployment increased and real wages were reduced by 30 to 50 percent because of high inflation (ILO, 1994). In the second phase, priority is still given to the state sector so that the private sector has remained relatively small.² Hence, the wage structure adjusted only slowly and discrimination against female workers became less costly.³ Therefore, wage reform and the contract system are important aspects of labor market reforms during this phase.⁴

In 1993, two important resolutions were passed; they specified the basic wage to be paid to all employees as a multiple of the minimum wage rate. In practice, enterprises calculate a different basic wage for different skills. The basic wage may be determined by an enterprise-specific minimum wage rate, which is higher than the economy-wide one and depends on productivity within the enterprise. In addition, performance-related bonuses from net profits of SOEs are distributed to workers as in China. Consequently, skill-based wage differentials have widened and a closer link has been established between wages and workers' productivity within a firm.

As in China, Vietnam has introduced a labor contract system. The 1994 Labor Code formalizes labor contracts as the basis for the employer–employee relationship. Since the introduction of the legislation, the number of workers covered by labor contracts in the non-state sector has increased dramatically. In the mid-1990s, about 75,000 workers had labor contracts; this number increased to 150,000 workers by the late 1990s. The intro-

¹ Instead of employers' taste, discrimination can result from market failure and profit-maximizing behavior by employers. For instance, Chase (2000) finds evidence of labor market discrimination against Latvia's Russian minority due to the absence of an integrated and flexible labor market.

² Between 1995 and 1998, the state sector accounted for 37 percent of Vietnam's total industrial growth. The domestic private sector contributed only 16 percent.

³ The term discrimination includes the unexplained part of the decomposition that captures the impact of discrimination but also the effects of unobserved characteristics and omitted variables.

⁴ McCarty (1999) and O'Conner (1996) provide details of these reforms.

duction of the contract regime also gives firms more autonomy in hiring and firing. These labor market reforms have been implemented uniformly across gender groups; however, they affect males and females differently because observable and unobservable characteristics differ by gender and these are rewarded differently. The minimum wage has only a minimal effect on the gender wage gap for wage-earners in Vietnam because it is too low to be binding for most wage earners. The minimum wage is only one-fourth of Vietnam's average wage in the domestic sector.

The next section describes the methodology and the data. Section 3 analyzes the factors that contribute to changes in gender wage disparities over time. Concluding remarks and policy implications are presented in Section 4.

2. Data and methodology

We use the Vietnam Living Standards Surveys (VLSS) for 1992–1993 and 1997–1998. Although the first survey is a self-weighted sample, the second survey over-samples specific domains so that the data are weighted. Our sample includes wage earners between 18 and 60 years who worked in the preceding 12 months and supplied earning data. In each survey, between 14 and 16 percent of the females in this age group are wage earners. Table 1 indicates that the female–male wage ratio increased from 0.77 in 1993 to 0.82 in 1998 so that the gender gap declined. Compared with most transitional economies, Vietnam had more pay equality between gender groups in 1998.⁵ The mean position of females is at the 44th percentile of the male wage distribution for 1992–1993, compared with the 40th percentile in 1997–1998. Therefore, either women's labor market skills deteriorated slightly relative to those of men or discrimination rose during this period. Since only a small fraction of the Vietnamese labor force is included, the results must be interpreted with caution.

The data in Table 1 also show that potential experience is fairly stable over time and that women have shorter potential experience than men. The average education for females decreases over time; it is lower than the average education of males in 1998. Given the short time span, dramatic changes in the human capital stock are unlikely. However, a possible explanation of the phenomenon is that exit from the wage sector into the self-employed sector or out of the labor force altogether depends on human capital. The data reveal that most of the females who leave the public sector exit the wage sector and either join the informal sector or leave the labor force altogether. In contrast, males tend to stay in the wage sector by moving into the private sector from the public sector. Within the wage sector, public servants have the highest level of education. Hence, changes in sectoral distribution, i.e. educated females exited but males stayed in the wage sector, caused human capital per female in the wage sector to decline over time.

Juhn et al. (1991) extend the decomposition method of Oaxaca (1973) and Neumark (1988) to analyze changes in the gender wage gap. Their method decomposes the change

⁵ Reilly (2002) reports an average value of 0.71 for 13 transitional economies. Kidd and Meng (2001) find a ratio of 0.72 for urban China in 1995.

Table 1
Summary statistics for variables used in earning equations

	1992–1993		1997–1998	
	Males	Females	Males	Females
Log hourly wage	−0.08	−0.34	0.29	0.10
Potential experience	18.35	16.61	19.30	18.75
Potential experience ² /100	4.53	3.99	4.84	4.77
Married	0.72	0.67	0.68	0.63
Migrant	0.66	0.61	0.72	0.65
Years of schooling	8.75	9.14	8.81	8.57
Urban	0.46	0.54	0.35	0.44
Northern Upland	0.09	0.07	0.10	0.09
Red River Delta	0.19	0.21	0.20	0.13
North Central	0.06	0.04	0.10	0.07
Central Coast	0.17	0.12	0.15	0.14
Central Highland	0.01	0.01	0.01	0.01
South East	0.24	0.27	0.19	0.30
Mekong Delta	0.24	0.28	0.25	0.26
Majority	0.91	0.93	0.90	0.91
Government	0.19	0.34	0.22	0.28
SOEs	0.23	0.23	0.14	0.19
Private	0.58	0.44	0.64	0.53
Professional	0.19	0.29	0.18	0.26
Office and trade workers	0.10	0.21	0.11	0.14
Laborers	0.56	0.35	0.65	0.54
Agricultural	0.16	0.16	0.06	0.06

Notes. 1. Hourly earnings rate of the cash and in-kind payment from main job over a 12 months period in logarithm (in a thousand *dongs*). 2. Potential experience is measured by age minus years of schooling minus six which is the official school entrance age. 3. The occupation groups are: (a) agriculture, fishery, hunting, forestry and animal husbandry; (b) professional, technical and leaders of the Party, government, unions and SOEs; (c) clerical, sales and service work; (d) laborers in production and related fields, transport equipment operation, and other laboring jobs. 4. Migrant equals to one if a person was not born in the district that he or she was living in at the time of the interview. 5. Marital status is coded as one if he or she is married, divorced, a widow or widower. 6. Urban area is coded as one. 7. For the majority dummy, Kinh is the major ethnic group.

in the gender wage gap into changes due to gender-specific components and changes due to the widening of the wage structure. Based on a male wage equation, the gender wage gap at time t can be written as

$$D_t = w_{mt} - w_{ft} = (x_{mt} - x_{ft})\beta_t + (\theta_{mt} - \theta_{ft})\sigma_t.$$

The change in the gender gap between two points in time, i.e., t and t' , can be written as

$$D_{t'} - D_t = [(x_{mt'} - x_{mt}) - (x_{ft'} - x_{ft})]\beta_{t'} + (x_{mt} - x_{ft})(\beta_{t'} - \beta_t) \\ + [(\theta_{mt'} - \theta_{ft'}) - (\theta_{mt} - \theta_{ft})]\sigma_{t'} + (\theta_{mt} - \theta_{ft})(\sigma_{t'} - \sigma_t),$$

where w_{mt} is the log of hourly wages. In addition, x_{mt} and β_t are vectors of independent variables and coefficients, respectively. The standard deviation of the residual and the standardized residual of the male wage equation are denoted σ_t and θ_{mt} respectively. The subscript f indicates females.

The first term, which represents the observed skill effect, is the change in the gender wage gap due to changes in gender differences in observed labor market characteristics, e.g., education and experience. The second term is the observed price effect; it captures the impact of the changing prices of men's observed labor market characteristics. The third term, which is the gap effect, reflects the contribution of changing the relative position of women in the male residual wage distribution. This effect is interpreted as the reward for unobserved skills or discrimination. If discrimination against women increases, women will move down in the male residual wage distribution. The last term, which is the unobserved price effect, measures the change in the gender wage gap due to changes in male residual wage inequality, holding constant the mean ranking of women in the male residual distribution.

If selective withdrawal from the wage sector into self-employment or out of the labor force is not taken into account, the effect will appear either in the observed skill term or in the gap effect if such selection is based on unobservables (Hunt, 2002). In the presence of discrimination, the breakdown of the unexplained effect into the gap and unobserved price effects is problematic because the percentile rankings are no longer independent of the standard deviation of the wage residuals (Suen, 1997). Since the gap effect can not change without a changing pattern in wage dispersion, this decomposition is no longer valid. Hence, these two terms must be interpreted with caution.

3. Earnings differential between males and females

To investigate empirically the sources of the earnings differential between males and females, we consider a regression in which the dependent variable is the log of the hourly earnings rate. We estimate an extended version of the human capital model, which includes a set of occupation, sectoral and control dummies, both for the pooled sample and for each gender and year. The approach in Hay (1979) is used to correct for selection bias. All correction terms are significant, except for the one corresponding to women in 1998. Table 2 presents empirical results with and without correction for selection bias.⁶

In 1993, males received 5 percent more in earnings for each additional year of education, which is 2 percent higher than the returns to females. However, by 1998, women earned higher returns to education than men.⁷ Vietnam's rates of returns to education in 1998 are similar to those found by other empirical studies in transition or developing coun-

⁶ We specify a multinomial logit model with three categories, namely, the wage sector consisting of the government sector, SOEs, and the private sector, self-employment, and people who are not working. Identification is achieved by including variables such as the number of children, non-labor income, and the dependency ratio. These variables affect participation in a particular category but they do not influence wages. The correction term for wage-earners is computed to augment the earnings functions. White's standard errors are used to obtain asymptotically consistent values.

⁷ The change is driven by the substantial fall in the rate of return to vocational education, in which males are dominant. Flanagan (1998) attributes a similar change in the Czech Republic to the inappropriate skills acquired in vocational training under central planning.

Table 2
Earnings equations

Independent variables	1992–1993				1997–1998			
	Males		Females		Males		Females	
	With	Without	With	Without	With	Without	With	Without
Potential experience	0.025 [*] (1.91)	0.026 ^{**} (2.42)	0.048 ^{***} (3.68)	0.047 ^{***} (4.85)	0.014 [*] (1.66)	0.017 ^{**} (2.47)	0.041 ^{***} (4.50)	0.037 ^{***} (4.53)
Potential experience ² /100	-0.035 (-1.38)	-0.039 [*] (-1.94)	-0.083 ^{***} (-3.03)	-0.085 ^{***} (-4.29)	-0.028 [*] (-1.69)	-0.034 ^{**} (-2.37)	-0.071 ^{***} (-3.45)	-0.068 ^{***} (-3.58)
Married	0.246 ^{**} (2.19)	0.178 ^{**} (2.15)	0.001 (0.01)	-0.009 (-0.12)	0.119 [*] (1.87)	0.112 ^{**} (2.48)	0.043 (0.58)	0.047 (0.86)
Migrant	-0.115 (-1.41)	-0.143 ^{**} (-2.14)	-0.026 (-0.29)	0.079 (1.14)	-0.067 (-1.20)	-0.083 [*] (-1.81)	-0.032 (-0.50)	-0.047 (-0.74)
Years of schooling	0.050 ^{***} (4.59)	0.045 ^{***} (4.47)	0.033 ^{**} (2.00)	0.050 ^{***} (4.27)	0.037 ^{***} (5.20)	0.034 ^{***} (5.26)	0.044 ^{***} (4.15)	0.040 ^{***} (5.00)
Urban	0.168 ^{**} (2.13)	0.109 [*] (1.75)	-0.087 (-0.87)	-0.013 (-0.17)	0.227 ^{***} (3.48)	0.138 ^{***} (2.75)	0.146 (1.57)	0.121 ^{**} (2.02)
Red River Delta	0.175 (1.22)	0.077 (0.63)	0.143 (0.81)	0.369 ^{***} (2.70)	0.027 (0.19)	0.016 (0.13)	0.028 (0.20)	0.081 (0.63)
North Central	-0.306 (-1.61)	-0.310 ^{**} (-1.98)	-0.174 (0.69)	0.033 (0.17)	0.100 (0.67)	0.045 (0.36)	-0.135 (-0.88)	-0.136 (-1.03)
Central Coast	0.233 (1.56)	0.090 (0.70)	0.242 (1.25)	0.452 ^{***} (3.00)	0.372 ^{***} (2.53)	0.320 ^{***} (2.49)	0.331 ^{**} (2.49)	0.246 ^{**} (2.06)
Central Highland	0.993 ^{***} (2.64)	0.690 ^{**} (2.51)	0.353 (0.95)	0.739 ^{**} (2.40)	-0.214 (-0.70)	-0.284 (-1.02)	0.646 ^{***} (3.41)	0.577 ^{***} (3.21)
South East	0.855 ^{***} (5.86)	0.696 ^{***} (5.74)	0.613 ^{***} (3.41)	0.899 ^{***} (6.72)	0.786 ^{***} (5.74)	0.708 ^{***} (6.08)	0.653 ^{***} (4.78)	0.619 ^{***} (5.25)
Mekong Delta	0.619 ^{***} (4.19)	0.456 ^{***} (3.73)	0.489 ^{***} (2.68)	0.584 ^{***} (4.23)	0.310 ^{**} (2.19)	0.240 ^{**} (2.09)	0.163 (1.10)	0.098 (0.80)
Majority	-0.0659 (-0.52)	-0.074 (-0.76)	0.155 (0.93)	-0.093 (-0.85)	-0.016 (-0.20)	0.045 (0.69)	-0.068 (-0.57)	-0.145 [*] (-1.64)

(continued on next page)

Table 2 (Continued)

Independent variables	1992–1993				1997–1998			
	Males		Females		Males		Females	
	With	Without	With	Without	With	Without	With	Without
Government employees	−0.357*** (−2.69)	−0.295*** (−2.74)	−0.073 (−0.49)	−0.013 (−0.11)	−0.321*** (−4.42)	−0.311*** (−4.00)	−0.014 (−0.14)	0.005 (0.05)
SOEs employees	−0.096 (−0.99)	−0.058 (−0.74)	0.006 (0.05)	0.042 (0.47)	0.047 (0.66)	0.000 (−0.00)	0.140* (1.78)	0.127** (2.11)
Professionals	−0.079 (−0.47)	0.009 (0.07)	0.212 (1.08)	0.042 (0.28)	0.551*** (4.29)	0.491*** (3.68)	0.411** (2.08)	0.489** (2.50)
Office/trade workers	−0.028 (−0.18)	−0.089 (−0.74)	−0.055 (−0.33)	−0.111 (−0.93)	0.128 (1.00)	0.110 (0.86)	0.206 (1.05)	0.315* (1.68)
Laborer	0.185* (1.68)	0.174** (2.24)	0.162 (1.05)	−0.034 (−0.31)	0.291*** (2.78)	0.222* (1.92)	0.174 (0.97)	0.232 (1.30)
Lambda	−0.182** (−2.15)		0.220* (1.77)		−0.110* (−1.85)		−0.063 (−0.57)	
Constant	−1.520*** (−5.61)	−1.151*** (−5.54)	−1.48*** (−4.08)	−1.752*** (−7.69)	−0.844*** (−3.98)	−0.705*** (−3.95)	−1.297*** (−4.44)	−1.121*** (−4.28)
No. of obs.	520	907	366	615	967	1380	677	1000
F-statistics	7.65	10.7	8.37	6.92	13.70	13.75	9.75	13.84
Adjusted R ²	19.57	16.16	12.99	14.75	29.27	26.72	27.07	26.73

Notes. 1. The dependent variable is the log of earnings in thousand dongs. 2. Private sector employees, agricultural occupations, and Northern Uplands are the omitted categories for sectoral, occupation and region dummies respectively.

* Significance at the 10% level.

** Idem., 5%.

*** Idem., 1%.

Table 3
Decomposition of gender wage gap

Conventional decomposition	1992–1993	1997–1998	Intertemporal decomposition	D ₉₈ – D ₉₃
$\ln \bar{W}_m$	–0.087	0.296		
$\ln \bar{W}_f$	–0.344	0.102		
$\ln \bar{W}_m - \ln \bar{W}_f$	0.257	0.194	Change in wage gap in log	–0.063
Oaxaca (1973)			Juhn, Murphy and Pierce (1991)	
Male wage structure			Observed skill effect	–0.084
Characteristics	0.002	–0.109	Observed price effect	–0.027
Returns	0.255	0.303	Gap effect	0.295
Female wage structure			Unobserved price effect	–0.247
Characteristics	–0.085	0.105		
Returns	–0.172	–0.299	Of which:	
Neumark (1988)			Gender-specific	0.211
Weighted wage structure			Wage structure	–0.275
Skill difference	0.036	–0.064		
Male advantage	0.069	0.122	Explained	–0.111
Female disadvantage	0.152	0.136	Unexplained	0.048

tries.⁸ Potential experience and its squared term describe the expected inverted-U shaped relationship between wage rates and labor market experience. The return to experience declines for all wage earners, although the decline is larger for males, indicating that recent labor market experience is more valuable than that acquired under central planning. Chase (1998) and Flanagan (1998) report similar findings in the Czech Republic. However, a declining experience premium is not found in China by Liu (1998).

Table 3 contains the decomposition results using several methods. According to those suggested by Oaxaca and Neumark, discrimination accounts for most of the gender earning differentials. Indeed, the decomposition result of Oaxaca suggests that in 1997–1998, all gender wage disparities are explained by discrimination. Using the male wage structure as an example, differences in returns, which are traditionally interpreted as discrimination, account for 156 percent of the gender wage gap during this period (0.303/0.194). The gender wage gap narrows over time by over 6 percent in logs. Small changes in the gender wage gap, in absolute terms, are reported for Hungary (0.054) and the Czech Republic (0.049) by Reilly (2002) and for China's state sector by Kidd and Meng (2001). These small changes in wage differences by gender may reflect the limited impact of labor market reform process or they may be due to different offsetting forces. To investigate the sources of the gender wage gap, we use the decomposition of Juhn et al. (1991).

Table 4 presents the contribution of different groups of independent variables to the changes of gender wage gap. The observed skill effect is negative, which indicates a reduction in the gap. All but the education variable help to narrow it. For instance, a shift in sectoral distribution accounts for 46 percent of the convergence of the overall gap. The changing occupation distribution of men and women accounts for about 10 percent of all

⁸ Psacharopoulos and Patrinos (2002) and Flanagan (1998) report rates of return on education of 3.7 percent for males and 5.1 percent for females in the Czech Republic in 1988, 4.5 percent for males and 5.6 percent for females in 1985 in China, and 12.4 percent for males and females in 1988 in the Philippines.

Table 4
A breakdown of the decomposition of gender wage gap by Juhn et al. (1991)

Intertemporal decomposition	D ₉₈ – D ₉₃	Contribution to the overall gap (%)
Change in wage gap in log Juhn et al. (1991)	–0.063	100.0
Observed skill effect	–0.084	133.3
Education	0.023	–36.5
Experience variables	–0.004	6.3
Sectoral variables	–0.029	46.0
Occupational variables	–0.008	12.7
Others	–0.065	103.2
Observed price effect	–0.027	42.9
Education	0.009	–14.3
Experience variables	–0.016	25.4
Sectoral variables	–0.005	7.9
Occupational variables	–0.058	92.1
Others	0.042	–66.7
Gap effect	0.295	–468.3
Unobserved price effect	–0.247	392.1

the observed skill effect (–0.008/–0.084) and 13 percent of the convergence.⁹ However, the education variable increases the gap, perhaps because of the lower human capital stock of females.

As Table 4 indicates, the gap effect is large and positive. In absolute value, it is comparable to that in Hungary (0.284) and the Czech Republic (0.256) found by Reilly (2002). This component measures the change in the mean female position between 1993 and 1998 as compared to the residual distribution of Vietnamese males in 1998. However, the gap effect should not be attributed solely to discrimination. The relative position of women in the male wage distribution may be due to demand or supply shocks as Orasem and Vodopivec (2000) argue.¹⁰ Examination of relative employment growth does reveal a mild demand shift away from female government employees. Furthermore, the gap effect may also depend on changes in unobserved skills (Suen, 1997). The sum of the observed skill effect and the gap effect is considered to be the gender-specific effect.¹¹ In Vietnam, the relatively large gap effect offsets the observed skill effect so that the gender-specific effect reduces the convergence of wages between genders.

⁹ A breakdown of the gender pay gap by the changing distribution of each occupation group, which is not shown here, indicates that the changing distribution of professional or office/trade-related occupations widens the gap by 0.011 and 0.009, respectively. On the contrary, the changing distribution of laborer narrows the gap by 0.029 in absolute value.

¹⁰ In Slovenia, a sectoral demand shift towards female-dominated sectors away from male-dominated ones results in a large gap effect in which women move up significantly in the male residual earnings distribution.

¹¹ Selective exit from the wage sector could appear either in the observed skill effect or in the gap effect. However, selection may not be important in Vietnam because both effects do not change much with or without selection correction. The measured effects in Vietnam are 0.052 and 0.26, respectively, without selection correction.

The negative observed price effect in [Table 4](#) indicates that changes in the prices of skills, in particular, changes in the returns to labor market experience, reduces the gender wage gap. Changes in the experience wage effect account for 59 percent of the observed price effect ($-0.016/-0.027$) and for 25 percent of the overall convergence. The decline in the returns to experience affects males more because they tend to have longer work experience than females. Changes in the sectoral distribution explain 19 percent of the observed price effect ($-0.005/-0.027$) and account for 8 percent of the narrowing gap. The negative unobserved price effect suggests that male residual wage inequality has decreased, which contributes to a narrowing of the gap. Hence, the changes in the wage structure captured by the unobserved price and observed price effects contribute to the convergence of the gender gap in Vietnam. [Kidd and Meng \(2001\)](#) find that decentralization in the labor market in China also resulted in lower wage inequality between the genders, although the opposite is observed in some East European countries. For example, [Reilly \(2002\)](#) reports that the unobserved price effect widened the gender gap in Hungary between 1986 and 1992.

4. Conclusion

Our decomposition results show that the convergence of the Vietnamese gender gap during the 1990s hides an adverse change in discrimination. The positive gap effect offsets almost entirely the observed skill effect and both observed and unobserved price effects. The situation is similar to the one in China but is in stark contrast to experiences in Western economies and in most Eastern European transitional economies. For example, an increase in wage dispersion is responsible for a widening gender gap in all Eastern European transitional economies, except in Bulgaria. The gap effect reduces the gender wage differentials in all countries, except in Federal Republic of Yugoslavia, and counteracts the adverse effects associated with increased wage inequality for the most part ([Reilly, 2002](#)).

The fact that Vietnam and China have similar experiences illustrates the importance of discrimination as an obstacle to gender wage gap convergence. Vietnam's underlying cultural beliefs and traditions are based on Confucianism. This traditional culture discriminates against women. Since gender wage discrimination is affected by both employers' taste and the degree of market competitiveness, education concerning equity in the workplace is important to combat discriminatory attitudes and market deregulation is also necessary to encourage the development of the private sector. The latter policy encourages market competitiveness and increases the cost of discriminatory practices.

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