Discussion Papers In Economics And Business

Earnings gaps among higher-educated workers within main cities in semi-industrialized and newly industrialized Asian countries

Mamiko Takeuchi

Discussion Paper 19-06-Rev.2

July 2019

Graduate School of Economics
Osaka University, Toyonaka, Osaka 560-0043, JAPAN

Earnings gaps among higher-educated workers within main cities in semi-industrialized and newly industrialized Asian countries[*]

Mamiko Takeuchi[†]
Kyushu University

Abstract

This paper comparatively analyzes determinants of earnings and the gender earnings gap among higher-educated workers in nine main cities in seven semi-industrialized and newly industrialized Asian countries. The analysis focuses on effects of specific qualifications or skills beyond a bachelor's degree; such as a postgraduate degree, specific field of degree, or experience working or studying abroad. The results show some such attributes positively affect earnings, although these varied by city and gender. A decomposition analysis also reveals there is no gender gap among higher-educated workers in Delhi and Mumbai, whereas endowment or coefficient effects on gender gaps are detected in other cities.

Keywords: Asian countries, Higher-educated workers, Specific abilities, Comparative analysis, Gender earnings gap
JEL Classification Codes: I26 J24 J71

[*] I appreciate a letter of recommendation from Hisakazu Matushige to submit my manuscript. This paper is supported by JSPS KAKENHI Grant Number 18K01652 and Kyushu University Research Activity Support Program. The data for this secondary analysis, "Gloval Career Survey" conducted by Recruit Works Institute, was provieded by the Social Science Japan Data Archive, Center for Social Research and Data Archives, Institute of Social Science, The University of Tokyo.
[†] Corresponding author: Mamiko Takeuchi, Kyushu University, Fukuoka, Japan.
E-mail: takeuchi[@]danjyo.kyushu-u.ac.jp

I. Introduction

Completion of higher education among young workers has been growing in semi-industrialized and newly industrialized Asian countries[1], though employment opportunities are often unfavorable in these countries. Notably, higher unemployment rates among younger workers and demand–supply mismatch for higher-educated workers have emerged as major concerns. Against this backdrop, the present analyses focuses on higher-educated younger workers in nine main cities in China, India, Indonesia, South Korea, Malaysia, Thailand, and Vietnam. These countries share some common challenges and areas of focus with regard to younger and/or higher-educated workers in their labor markets.

In China, the government has expanded the number of universities and increased enrollment, based on its policy of improving human resources to sustain national economic growth (Meng, 2018). However, the full-time employment rate has been declining because of a demand–supply mismatch in the labor market (Meng, 2018; Ministry of Health, Labour and Welfare, 2017). The problem of university graduates' employment was defined as the first priority on the government's agenda in 2011 (Ministry of Health, Labour and Welfare, 2014). In India, the university enrollment rate increased by 13.3% from 2013 to 2017, and holders of doctoral degrees also increased during this period (Government of India, Ministry of Human Resource Development, 2017). However, the unemployment rate[2] for those aged <30 years outpaced the overall unemployment rate, including among those with university degrees or higher. A demand–supply mismatch in the labor market has occurred among higher-educated workers because of this group's general preference of working in white-collar jobs (Ministry of Health, Labour and Welfare, 2017).

A similar situation has been observed in Indonesia, where the national unemployment rate was 5.5% in August 2017, and has been as high as 27.54% among people aged 15–19 years (Statistics Indonesia, 2018). Employment measures for young people are the topic of key policy initiatives in this country (Ministry of Health, Labour and Welfare, 2017). In South Korea, the unemployment rate among those aged 15–29 years increased by 10.4% in 2017 (Korean Statistical Information Service, 2018). University enrollment has remained high, leading to a problematic lack of jobs for university-educated workers, causing higher unemployment and rapid turnover (Kim, 2013). The government has announced an employment-promotion program, including job creation and an internship initiative for younger people (Ministry of Health, Labour and Welfare, 2018). In Malaysia, the unemployment rate among those aged 15–

24 years was approximately 10% in 2016, higher than the total unemployment rate. The lack of jobs to keep pace with the rapid progress in higher education has been pointed out (Ministry of Health, Labour and Welfare, 2017).

Similarly, in Thailand, the unemployment rate has held at around 1% in recent years, though the unemployment rate among people aged <25 years, at around 5%, surpassed the total rate in the second quarter of 2016 (National Statistical Office, Thailand, 2017). Vietnam's labor force has continually grown (General Statistics Office of Vietnam, 2016) and the unemployment rate has remained at a low level; 2.1% in the fourth quarter of 2016. However, the unemployment rate among those aged <25 years was 7.28%, accounting for 50.9% of the total unemployment rate (General Statistics Office of Vietnam, 2016). The younger generation, aged 0–24 years, comprises 40.0% of Vietnam's population, and 23.1% of the population is <14 years old; therefore, job creation will be an important topic in coming years.

Noteworthy in the above descriptions of these countries' employment situations is that each country faces one or more issues regarding unemployment in urban areas, unemployment of young people, and job mismatch among higher-educated workers. Thus, the working environment for the higher-educated younger generation has grown unfavorable in the urban areas of these countries. Their governments all face certain challenges in supporting these workers. Furthermore, working conditions are thought to differ for men and women in each country[3]. Under these circumstances, the main concern of this study is what skills provide an advantage among higher-educated workers amid competition for work. From this perspective, this study analyzes the determinants of earnings among higher-educated young workers in nine main cities in seven Asian countries; Shanghai in China, Delhi and Mumbai in India, Jakarta in Indonesia, Seoul in South Korea, Kuala Lumpur in Malaysia, Bangkok in Thailand, and Hanoi and Ho Chi Minh City in Vietnam. We particularly focus on the effects of these workers' qualifications or skills in addition to just having an undergraduate degree—such as having a postgraduate degree, a specific field of degree, and experience working or studying abroad—on their earnings. Earnings function is estimated by country and gender, and a comparative analysis of these estimations is conducted, as well as a decomposition analysis of the earnings function.

The rest of this paper is organized as follows. The next section presents a review of the literature. Section III provides the analytical methodology. This is followed by a summary of the source of data and descriptive statistics of variables in section IV. Section V discusses the results, while the final section concludes the paper.

II. Literature Review

A large number of studies have investigated the return associated with higher education, specific majors, and graduate school, and some have shown these factors to explain gender gaps (Daymont and Andrisani, 1984; Gerhart, 1990; Grogger and Eide, 1995; Finnie and Frenette, 2003; Machin and Puhani, 2003; Black *et al*., 2004; O'Leary and Sloane, 2005; Furno, 2014; Zafar, 2016; Walker *et al*., 2017). García-Arail (2008) points out that when the fields of study are considered, mathematics, engineering, and medical sciences graduates earn more than graduates from other fields. Such choice of field is also found to affect the gender gap among European higher-education graduates. Mclntosh and Lindley (2015) show that, in the United Kingdom, most of the increase in graduate wage inequality relates to subjects studied, and that variance of childhood cognitive test scores and the widening variety of jobs graduates performed potentially also affect this inequality. Lindley and Machin (2016) argue that the wage gap between workers with postgraduate and only undergraduate degrees substantially widened from 1980 to 2012 in the United States. Parey and Waldinger (2011) find that European university students studying abroad tend to be more-skilled workers and increase their likelihood of later working abroad.

Some studies have focused on Asian countries (Bauer *et al*., 1992; Gustafsson and Li, 2000; Sebastian, 2008; Su, 2011; Chang, 2015; Qin *et al*., 2016; Lee and Wie, 2017). Lee *et al*. (2016) analyze return to overeducation across fields of study in South Korea, and find the return for university graduates in health and welfare, engineering and manufacturing, social sciences, business, and law are relatively high compared with return for those in agriculture, humanities and arts. Though very few studies have investigated effects concerning Asians working or studying abroad, Counsell (2011) points out that earning a degree and working in the United Kingdom, United States, or Australia tend to favorably impact future careers for workers in China. Rani (2014) discusses that return to education for workers in India is greater for those with fluent English. Azam *et al*. (2013) also point out the advantages of English proficiency, specifically among younger educated workers in India.

Gender gaps have also been explored in Asian countries. Yoo (2003) confirms the gender wage gap in South Korea decreased from 1988 to 1999; however, discrimination against female workers replaced human capital endowment as the main gender gap. Cho and Lee (2015) investigate the gender wage gap under the stratified structure of the labor market in South Korea and confirm gender skewness in employment distribution in that market structure. Milanovic

(2006) confirms wage discrimination against women, based on Oaxaca decomposition (Oaxaca, 1973), for workers with educational levels ranging from primary school to university in Malaysia. Fang and Sakellariou (2011) investigate the gender monthly earnings gap in Thailand using quantile regression combined with Oaxaca–Blinder decomposition, and find most of the gender earnings gap is due to discrimination, especially at the lower tail of the distribution. Lee and Wie (2017) examine the gender wage gap in urban China and urban India and find a widening gap in China but a dramatically reduced one in India.

Few studies, however, have focused on investigating the determinants of earnings among higher-educated workers in Asian countries and the gender earnings gap among these workers, especially in urban areas. The present research contributes with an international comparative analysis focusing on young workers with higher education in nine main cities in seven Asian countries. By using data from a unique survey carried out by a Japanese think tank, this study is able to focus on workers who are leading growth and development of Asian countries, where the popularization of higher education is increasing. This is in contrast to the employment situation, which remains rigid, in recent years. In particular, we investigate the effects of these worker's additional qualifications and skills—such having a postgraduate degree, specific field of degree, and experience working or studying abroad—on their earnings. A decomposition of the gender earnings gap is also conducted among these workers for investigating the gender gap among higher-educated workers.

III. Analytical Method

III.1. Estimation of determinants of earnings by country and gender

First, the earnings function by city and gender is investigated as follows:

$$\begin{aligned} Y_{ij} &= X_{ij}^{'}\beta_{ij} + \varepsilon_{ij} \\ &= Z_{ij}^{'}\gamma_{ij} + V'\delta_{ij} + \varepsilon_{ij}, \quad E(\varepsilon_{ij}) = 0, \\ i &\in \left\{ \begin{matrix} Shanghai,\ Delhi\ and\ Mumbai,\ Jakarta,\ Seoul,\ Kuala\ Lumpur \\ Bangkok, Hanoi\ and\ Ho\ Chi\ Minh\ City \end{matrix} \right\} \\ j &\in \{male, female\} \end{aligned} \tag{1}$$

where $X_{ij}^{'}$ is a vector of personal characteristics and β_{ij} contains the corresponding vector of model parameters and the intercept, and ε_{ij} is the error term. The dependent variable Y_{ij} is the yearly earnings in 2011 by city and gender.

The logarithm of hourly wage would have been a better measure of the dependent variable,

but the data set used herein does not contain information on hours worked. We also determined we would use earnings without the logarithm based on the residual sum of squared and adjusted R-squared[4]. For the independent variables, all available work-related information from the data set is used. Postgraduate degree, field of degree (dummy variables for social science, natural science, or other, compared with the reference group of the humanities), experience working abroad, and experience studying abroad are used as the attributes of interest. These variables are appropriate for investigating the effects of workers' additional qualifications and skills. However, these variables could only be treated as the exogeneous variables, not as endogenous variables. This owes to the lack of necessary information in this survey. Moreover, the small data sample size used in this study prevent attempting a more developed estimation. For these reasons, the fundamental Mincerian-type equations are estimated using the ordinary least squares method.

III.2. Decomposition of gender earnings differentials

A popular decomposition method, the Blinder–Oaxaca decomposition technique (Blinder, 1973; Oaxaca, 1973), is used to investigate the gender earnings differentials. This method divides the gender differential in wages into a part that is essentially explained by differences between men and women in productivity characteristics such as education or work experience and a residual part that cannot be accounted for by such differences in wage determinants. This unexplained part is often used as a measure of discrimination, but it also includes the effects of group differences in unobserved predictors. Most applications of this technique can be found in the labor market and discrimination literature (Stanley and Jarrell, 1998; Weichselbaumer and Winter-Ebmer, 2005). The question of this study is how much of the mean outcome difference is accounted for by group differences in the predictors. Given the two groups (men and women), an outcome variable for earnings *Y*, and a set of predictors in each city *i*, the mean outcome difference is expressed as

$$R = E(Y_{i\bullet male}) - E(Y_{i\bullet female}) \tag{2}$$

where $E(Y_{i\bullet male})$ and $E(Y_{i\bullet male})$ denote the expected values of the outcome variable. Based on the linear model (1), the mean outcome difference can be expressed as the difference in the linear prediction at the group-specific means of the regressors:

$$R = E(Y_{i\bullet male}) - E(Y_{i\bullet female}) = E(X_{i\bullet male})'\beta_{i\bullet male} - E(X_{i\bullet female})'\beta_{i\bullet female} \tag{3}$$

This is so because

$$E(Y_{ij}) = E(X_{ij}'\beta_{ij} + \varepsilon_{ij}) = E(X_{ij}'\beta_{ij}) + E(\varepsilon_{ij}) = E(X_{ij})'\beta_{ij},$$

with $E(\beta_i) = \beta_i$ *and* $E(\varepsilon_i) = 0$ by assumption. To identify the contribution of group differences in predictors to the overall outcome difference, equation (3) can be rearranged, for example, as follows (Daymont and Andrisani, 1984; Jones and Kelley, 1984; Winsborough and Dickinson, 1971):

$$\begin{aligned} R = &\left[E(X_{i\bullet male}) - E(X_{i\bullet female})\right]' \beta_{i\bullet female} + E(X_{i\bullet female})'(\beta_{i\bullet male} - \beta_{i\bullet female}) \\ &+ \left[E(X_{i\bullet male}) - E(X_{i\bullet female})\right]' (\beta_{i\bullet male} - \beta_{i\bullet female}) \end{aligned} \quad (4)$$

This is a threefold decomposition; that is, the outcome difference is divided into three parts:

$$R = E + C + I$$

The first part,

$$E = \left[E(X_{i\bullet male}) - E(X_{i\bullet female})\right]' \beta_{i\bullet female}$$

is the part of the differential that is attributable to group differences in the predictors (the "endowment effect"). The second component,

$$C = E(X_{i\bullet female})'(\beta_{i\bullet male} - \beta_{i\bullet female})$$

measures the contribution of differences in the coefficients (including differences in the intercept). The third part,

$$I = \left[E(X_{i\bullet male}) - E(X_{i\bullet female})\right]' (\beta_{i\bullet male} - \beta_{i\bullet female})$$

is an interaction term accounting for the fact that differences in endowments and coefficients exist simultaneously between the two groups. The decomposition (4) is formulated from the viewpoint of female workers; that is, the group differences in the predictors are weighted by the coefficients of female workers to determine the endowment effect (E). This means the (E) component represents what the expected change in women's mean outcome would be if women had men's predictor levels. Similarly, for the second component (C), the differences in coefficients are weighted by women's predictor levels; therefore, the second component represents what the expected change in women's mean outcome would be if women had men's coefficients.

IV. Data

The dataset used in the present analysis is from the Global Career Survey, which was conducted online September 14–21, 2012, by Recruit Works Institute, a leading Japanese think tank in the

field of labor market research. This survey (Recruit Works Institute 2013) was conducted to investigate the differing and common factors of the actual work situations of higher-educated younger workers. It is a multinational survey aimed at comparative analysis of urban areas in Asian countries. The target population was workers with a bachelor's degrees or higher, and who were aged 20–39 years and worked in Shanghai, Delhi, Mumbai, Jakarta, Seoul, Kuala Lumpur, Bangkok, Hanoi, or Ho Chi Minh City. The sample size was set to select 150 workers in each age and gender group in each country, yielding a total sample size of nearly 600 in each country. This survey is unique because it allows the investigation of younger educated workers, who are leading growth and development in the main cities of these seven Asian countries. The survey also allows investigation of the effects of additional qualifications and skills—such as having a postgraduate degree, specific field of degree, and experience working or studying abroad—on earnings among workers with higher education.

The dependent variable is earnings in the previous year, 2011. For this reason, respondents who changed jobs from 2011 to the point of the survey from the analytical sample were excluded because information about their former jobs was not unavailable. One year was also subtracted from the time-related variables such as length of employment so that all variables showed the workers' attributes in 2011.

The responses on earnings were in the currency of each country: Chinese yuan, Indian rupee, Indonesian rupiah, South Korean won, Malaysian ringgit, Vietnamese dong, and Thai baht. We converted these currencies to United States dollars (USD) at the exchange rate on September 20, 2011, 1 year before the survey. In addition, we excluded observations with earnings over three standard deviations higher than the average earnings in each country as outliers.

Figure 1 shows the kernel density distributions of men's and women's earnings in the nine cities of seven countries. The distributions for men tend to be skewed slightly to the right, and the gender earnings gap is confirmed. However, in Delhi and Mumbai, both genders' distributions are almost matched, with the peaks of the distributions at almost the same point in the graph. In Bangkok, only the distribution for men is skewed to the right.

Tables 1 and 2 present the descriptive statistics for male and female workers by country. Regarding the definition of independent variables, a postgraduate degree indicate that workers had a master's or doctoral degree, and field of degree is divided into four broad fields. The broad field social science includes, among others, the disciplines of economics, business administration, law, and political science. Natural science includes engineering, agriculture, medicine, and physical science. "Other" includes art, architecture, and other such disciplines.

Humanities is the reference category in the analyses, and includes disciplines such as literature, psychology, and education.

For workers' information, the independent variables include years of tenure at the same company and several dummy variables, such as whether the individual had held a managerial position, experience changing jobs, worked as a full-time employee (part-time employee as the reference group), permanent employee (fixed-term employee as the reference group), or worked for a foreign-affiliated company[5]. Also included is a set of dummy variables gauging whether the worker is a public employee, company executive or director, self-employed or family employee, with company employees as the reference group. Additionally, dummy variables assessing the workers' lifestyle attributes—such as marital status, the presence of children, and living with parents—are included.

Regarding the comparative examination, columns in Tables 1 and 2 include each country's rank for each variable, and gray boxes are used to indicate the top-ranked country for each variable. Average earnings in each country varied, reflecting the exchange rate to the dollar. Delhi and Mumbai rank first among the seven countries in terms of the percentage of workers with a postgraduate degree (40.0% for men, 40.8% for women). Jakarta has the highest percentage of male workers with a social science degree (37.4%), and Shanghai has the highest percentage of female workers with a social science degree (45.3%). Hanoi and Ho Chi Minh City have the highest percentage of workers with a natural science degree among men (45.4%), while Delhi and Mumbai have the highest percentage among women (40.5%). Delhi and Mumbai also have the highest percentage of men with experience working abroad (31.0%). For women, this percentage is highest in Shanghai (15.1%). Seoul has the highest percentages of both men (21.3%) and women (22.3%) who had studied abroad.

Tendencies are very similar for men and women within each country for the other examined attributes. Bangkok ranks first in average years of tenure for both men (5.52 years) and women (4.73 years). The highest percentages of managerial positions among both men (59.6%) and women (52.0%) are observed in Shanghai. The highest percentage of male workers changing jobs is in Kuala Lumpur (61.9%), followed by Bangkok (53.9%). The highest percentage of female workers changing jobs is found in Bangkok (63.0%), with Kuala Lumpur (60.2%) second. For both men and women, the highest percentages of public employees are in Hanoi and Ho Chi Minh City (25.3% for men, 22.8% for women). The highest percentages of those working for foreign-affiliated companies and of full-time employees are in Shanghai (97.8% and 26.9% for men, 98.7% and 36.4% for women). The highest percentages of permanent

employees are in Seoul (91.5% for men, 82.8% for women). The highest percentages who are company executives or directors were in Kuala Lumpur (14.4% for men, 14.5% for women). The highest percentages of self-employed workers are in Jakarta (12.1% for men, 20.5% for women). The highest percentages of those who are married were in Shanghai (72.6% for men, 70.7% for women).

For other characteristics, the top-ranking countries differ by gender. The highest percentage with children is seen in Jakarta for men (51.1%) and in Delhi and Mumbai for women (56.8%). The highest percentage living with their parents is seen in Delhi and Mumbai for men (52.5%) and in Seoul for women (45.9%).

V. Results

V.1. Estimation results of the earnings function by gender

Tables 3 and 4 show the estimation results of men's and women's earnings functions by the cities in each country. All employment status dummy variables were combined into "Type of employment" at the bottom of these tables; this includes full-time employee, permanent employee, and a set of dummy variables of public employee, company executive or director, self-employed or family employee, with company employee as the reference group. Three dummy variables—marital status, having children, and living with one's parents—were also grouped into "Lifestyle attribute" in these tables.

First, we examine the four categories of focus in this research: postgraduate degree, field of degree, experience working abroad, and experience studying abroad.

Table 3 shows that having a postgraduate degree has a positive effect on men's earnings in both Shanghai and Seoul. The coefficient is 9,011.89 in Shanghai and 13,000.00 in Seoul. These figures are large relative to the average earnings for men in Shanghai (USD 21,168.91, shown in Table 1) and Seoul (USD 28,767.46).

Regarding field of degree, the dummy variables for social science, natural science, and "other" fields are compared with the reference group of the humanities. In Seoul, a social science degree is more greatly associated with higher earnings than are degrees in other fields, with natural science degrees ranking second. In Hanoi and Ho Chi Minh City, a social science degree is also associated with higher earnings, at the 10% level of significance. In contrast, in Kuala Lumpur, a humanities degree is associated with the highest earnings. These results differ from those in most of the previous studies analyzing other countries (e.g., García-Arail [2008] and Lee *et al*. [2016]), providing evidence of the earnings premium for the fields of science and

businesses.

In Shanghai, experience working abroad is found to have a coefficient of 7798.44, which is significant at the 5% level. This effect is smaller than the effect of having a postgraduate degree. Similarly, in Hanoi and Ho Chi Minh City, experience working abroad has the coefficient of 3552.93, which is significant at the 5% level; this effect is large, at 70% of men's average earnings of USD 5832.04 (Table 1). Only in Seoul is the effect of studying abroad significant for predicting earnings; there, the coefficient of 9052.85 is significant at the 5% level.

Several other variables are shown to have noteworthy effects on men's earnings. Holding a managerial position has a significantly positive effect in all seven countries. Employment in foreign-affiliated companies has a positive impact in Shanghai and Jakarta.

Table 4 shows the results for women's earnings function. Having a postgraduate degree has a positive effect on women's earnings in Shanghai and Bangkok, with coefficients of 9868.97 and 6638.16, respectively. These coefficients are quite large compared with women's average earnings in Shanghai (USD 17521.51) and Bangkok (USD 6566.61). Notably, this effect is larger for women than for men in Shanghai and is significant only for women in Bangkok. In contrast, in Hanoi and Ho Chi Minh City, having a postgraduate degree negatively affects women's earnings; significant at the 10% level. However, this effect is likely explained by the small sample of female postgraduate workers (4.4%) and should therefore be interpreted more moderately—as a postgraduate degree having no positive effect on women's earnings in Hanoi and Ho Chi Minh City.

Having a natural science degree has a positive impact on women's earnings in Shanghai, Delhi and Mumbai, and Seoul. Experience working abroad has no effect in any of the surveyed countries, but experience studying abroad has a significant positive effect on women's earnings in Seoul, Bangkok, and Hanoi and Ho Chi Minh City. For female workers in Bangkok, both having a postgraduate degree and experience studying abroad have positive effects on earnings. This indicates the importance of additional learning opportunities in this country for higher earnings among educated female workers.

Several other variables have noteworthy effects on women's earnings. Years of tenure at the same company has a positive effect in Shanghai, Delhi and Mumbai, Jakarta, and Kuala Lumpur; representing four countries. Holding a managerial position also has a significant positive effect on women's earnings in the cities of four countries; in this case, Shanghai, Delhi and Mumbai, Bangkok, and Hanoi and Ho Chi Minh City[6]. These results differ from those for men. It appears more important for women to continue to work for the same company during

the early stages of their careers.

V.2. Results of decomposition of gender earnings differentials

In Table 5, Predictions 1 and 2 show men's and women' average earnings, respectively. These figures correspond exactly to the figures for earnings presented as descriptive statistics in Tables 1 and 2. The "Difference" column indicates the difference between male and female average earnings, and another column indicates women's earnings as a percentage of men's earnings within each country. The significance level shows the statistical results of mean comparison tests (*t*-tests of equality of means). The earnings differential between men and women is not significant in India, where the average for women's earnings is 85.6% of that for men's earnings. However, the earnings differentials in all other cities are significant at the 5% or 10% level. In Bangkok, earnings for women are, on average, 70.7% of those for men. This percentage is the lowest among the nine cities in seven countries. Considering the graph for Bangkok presented in Figure 1, the right tail of the distribution for men widen the gender gap in this country, even after dropping outliers for earnings[7].

In the results of the three parts of the decomposition, endowments significantly affect the gender differentials in Shanghai, Seoul, and Hanoi and Ho Chi Minh City, and coefficients (evaluations of endowments) significantly affect the gender differentials in Shanghai, Jakarta, Kuala Lumpur, and Bangkok at the 5% or 10% significance level. Thus, there is a possibility that both effects contribute to the gender gap only in Shanghai. The last column of Table 5 shows no significant interaction effects; therefore, we specially focus on the endowment and coefficient effects in Tables 6-1 and 6-2. Those tables show the breakdown details of the two effects from the total decomposition results. Variables with positive values positively contributed to the total decomposition results, and variables with negative values reduced them.

Looking at cities where the gender differential in earnings is significantly affected by endowment factors in Table 6-1, the proportion of workers with a degree in natural science contributes to the gender differentials in Shanghai and Seoul, at USD 811.01 and USD 1810.49, respectively. These results reflect the descriptive findings in Tables 1 and 2 that 44.8% of men and 30.2% of women in Shanghai and 44.0% of men and 21.7% of women in Seoul have a degree in natural science. In the same way, the gender difference in the proportion of workers holding managerial positions contributes the most to the gender earnings differential in Hanoi and Ho Chi Minh City. The extent of the contribution is USD 346.76, which reflects the descriptive finding that 46.0% of male workers and 31.1% of female workers are managers

(Tables 1 and 2). However, the gender differences in postgraduate degrees, degrees in natural science, and managerial positions also significantly contribute to the earnings difference in Bangkok, but the total value of USD 794.14 is not significant. These results could be explained as each significant variable contributing to the gender earnings differentials, but, on the whole, being offset by other variables.

For the cities where coefficient effects significantly affect the gender earnings differential (Table 6-2), experience working abroad contributes to the coefficient effects at USD 114.09 in Jakarta and USD 407.06 in Bangkok. Experience studying abroad also has a significant positive effect on the total coefficient effect result in Kuala Lumpur. Holding a managerial position has a significant impact on the total results, at USD 874.87 in Jakarta and USD 2418.56 in Kuala Lumpur. However, years of tenure at the same company in Shanghai, Delhi and Mumbai, and Jakarta, as well as having a postgraduate degree and experience studying abroad in Bangkok, have significant negative effects on the earnings differentials. Notably, the coefficient effect of a postgraduate degree in Bangkok nearly cancels out the positive endowment effect. In Seoul, having a postgraduate degree possibly effects on the differentials, but the total coefficient effect is not significant.

In sum, one particularly noteworthy result shown in these two tables is that the proportional differences in study fields between men and women contribute to widening the gender gap in the cities of three countries (Table 6-1), whereas years spent working at the same company contribute to reducing the gender gap in the cities of three countries (Table 6-2). However, holding a managerial position is a barrier for women to gain the same level of earnings as their male counterparts from the viewpoints of endowment or evaluation components in the cities of four countries (Tables 6-1 and 6-2).

Finally, from the results of the earnings estimation and decomposition analysis, we also find that the variables other than tenure at the same company that contribute to higher earnings among women, such as earning a degree in a natural science field or holding a managerial position, do not contribute to reducing the earnings gap between men and women.

VI. Conclusions

This study explored the determinants of earnings among workers with higher education in nine main cities in seven Asian countries: Shanghai, Delhi and Mumbai, Jakarta, Seoul, Kuala Lumpur, Bangkok, Hanoi and Ho Chi Minh City. The survey used for this study was conducted in 2012 by a Japanese think tank. That survey's respondents are almost 600 workers aged 20–

39 years in each country. The sample in this survey can be seen as representing workers with potential to lead the Asian economy in the large industrial cities, and this study is the first attempt at a comparative analysis among these cities, using this unique dataset.

The present analysis predicted individual earnings, focusing on the effects of having a postgraduate degree, field of degree, experience working abroad, and experience studying abroad, to examine the impact of additional qualifications or experience beyond a university degree.

First, we found positive effects of having a postgraduate degree on male workers' earnings in Shanghai and Seoul. Additionally, holding a social science degree in Seoul or Hanoi and Ho Chi Minh City and a humanities degree in Kuala Lumpur has a significantly positive effect on male workers' earnings. For men in Shanghai and in Hanoi and Ho Chi Minh City, experience working abroad positively impacts earnings, while experience studying abroad has a positive effect in Seoul.

Second, we found that having a postgraduate degree has a positive impact on women's earnings in Shanghai and Bangkok. Holding a degree in natural science has a significant positive effect on earnings for women in Delhi and Mumbai, Shanghai, and Seoul. We could not confirm that having experience working abroad affected women's earnings. However, experience studying abroad has a positive effect in Seoul, Bangkok, Hanoi and Ho Chi Minh City.

Finally, we performed a decomposition analysis of gender earnings differentials. The results do not detect a gender gap in earnings in Delhi and Mumbai, although there are significant gender earnings gaps in the cities of the other countries. The decomposition results show that endowment effects significantly influence the gender earnings differentials in Shanghai, Seoul, and Hanoi and Ho Chi Minh City, whereas coefficient effects significantly influence the gender differentials in Shanghai, Jakarta, Kuala Lumpur, and Bangkok.

As for the endowment effects, the proportional difference in having a degree in natural science in Shanghai, Seoul, and Bangkok and the proportional difference in holding a managerial position in Bangkok and in Hanoi and Ho Chi Minh City have positive effects on the earnings differentials in each country.

Based on the results of the coefficient effects analysis, experience working abroad contributes to the coefficient effects in Jakarta and Bangkok, and holding a managerial position significantly affects the total results for coefficient effects in Jakarta and Kuala Lumpur. Years of tenure at the same company in Shanghai, Delhi and Mumbai, and Jakarta, and holding a

postgraduate degree and having experience studying abroad in Bangkok, significantly reduce the earnings differentials. This means these attributes are more evaluated for women than for men.

In conclusion, the results show that earnings competition among higher-educated workers has been widening in the main cities of seven Asian countries. Although the extent of this varied among the examined cities, additional abilities and qualifications may become increasingly important in the future. In these contexts, gender earnings gaps persist among workers with higher education. Especially for women, holding a natural science degree and serving in a managerial position are recognized more productive human resources within the female group (in Table 4), but these attributes possibly contribute to widening the gender earnings gaps through endowment effects in Shanghai, Seoul, and Bangkok (in Table 6-1). This paradox might owe to men dominating at the level of proportion or evaluation for these attributes.

The present results should be carefully comprehended as evidence derived from higher-educated workers specifically in main Asian cities. Especially, the positive impact of humanities on men's earning in Kuala Lumpur, the slightly negative impact of a postgraduate degree on women's earnings in Hanoi and Ho Chi Minh City, and a wider gender earnings gap in Bangkok generally differ from findings in previous studies and reports. Further research is needed to clarify these findings.

Additionally, the sample used in this analysis had 150 respondents for each age and gender category in each country, for a total sample size of 600 in each country. The distributions in the sample are therefore not proportional to the real distributions of workers in the examined cities. Additionally, the sample sizes are insufficiently large to guarantee robust estimation results. Insufficient information on respondents also restricts more extended analyses, such as instrumental variable estimations dealing with omitted variables and quantile regressions investigating distributions. These issues will be explored in future research.

Notes

1. UNESCO (2014) reported that, over the past four decades, global higher education enrollment increased from 32.6 million in 1970 to 182.2 million in 2011, 46% of which was in the East and South Asian region as of in 2011.
2. The definition of unemployment rate differs across the studied countries. The information presents here refers to the definition used by the Japan Institute for Labour Policy and Training (2015).
3. Recent statistical features concerning women's working conditions are reported. For all female workers in India, who have a higher unemployment rate than male workers, the government has implemented women's vocational training to encourage them to work in society (Ministry of Health, Labour and Welfare, 2017). In South Korea, the gender wage difference has generally declined since 2010 and women's hourly wages were 66.4% of men's in 2015 (Chan, 2016). In Malaysia, the female labor force participation rate was 48.8% in 2012, which was lower than that in neighboring countries (The Japan Institute for Labour Policy and Training, 2013). The female labor participation rate in Thailand has been among the highest of the Association of Southeast Asian Nations (ASEAN) member countries, and female workers there who give birth generally return to their workplace (Ministry of Health, Labour and Welfare, 2017).
4. In fact, the earnings-age profile should not gradually decrease for those aged 20–39 years. This is not the case in a normal wage profile.
5. The survey used for this study did not include certain information about the workers, such as their occupation, industry, or employer size. Years of tenure at the same company was used as an independent variable because it was found to be more suitable than worker's age or working experience years, based on the adjusted R-squared and *t*-statistic.
6. Unexpectedly, marriage and childbearing had no effect on women's earnings in any of the surveyed cities. Because the sample in this study consisted of workers with higher education and working in urban areas, these results indicate the possibility that women with a certain level of ability and qualifications receive relatively sufficient support to continue to work, and experience no negative impact on their earnings from the household tasks associated with marriage and having children.
7. Recruit Works Institute (2013) suggested the earnings differences between men and women in India and Vietnam were smaller than in other countries; however, the

difference in Thailand was not mentioned as indicating a wide gender gap. This might reflect different treatment of outliers. That study dropped the top and bottom 2.5% of earnings distribution in its analysis.

References

Azam, M., Chin, A. and Prakash, N., 2013, The returns to English language skills in India. *Economic Development and Cultural Change*, **61(2)**, pp.335-367.

Bauer, J., Wang Feng, N.E. Riley, Zhao Xiaohua, 1992, Gender inequality in urban China. *Modern China*, **18(3)**, pp. 333–70.

Black, D., A. Haviland, S. and Sanders, L. Taylor. Gender wage disparities among the highly educated. *The Journal of Human Resources*, **43(3)**, pp. 630–59.

Blinder, A.S., 1973, Wage discrimination: reduced form and structural estimates. *The Journal of Human Resources*, **8(4)**, pp. 436–55.

Chan, J., 2016, Gendar no kanten kara mita kankoku no koyouseisaku (Labor policy in Korea from the viewpoint of gender). *Report of the 16th Japan–Korea Workshop – Women's Labor Issues: Comparison Between Japan and Korea*. Japan Institute for Labour Policy and Training, Tokyo.

Chang, X., 2015, Analysis of education wage premium in several provinces of China. *Modern Economy*, **6(8)**, pp. 862–70.

Cho, J. and Lee, J., 2015, Persistence of the gender gap and low employment of female workers in a stratified labor market: evidence from South Korea. *Sustainability*, **7**, pp.12425-12451.

Counsellu, D., 2011, Chinese students abroad: why they choose the UK and how they see their future, *China: An International Journal*, **9 (1)**, pp.48-71.

Daymont, T.N., P.J. Andrisani, 1984, Job preferences, college major, and the gender gap in earnings. *The Journal of Human Resources*, **19(3)**, pp. 408–28.

Department of Statistics Malaysia, 2017, Labour Force Survey report, Malaysia. [online; cited February 2019]. Available from URL: https://www.dosm.gov.my/v1/index.php?r=column/cthemeByCat&cat=126&bul_id=aEdIelhlVTBtOHhjOUxqcXhyc2pCUT09&menu_id=U3VPMldoYUxzVzFaYmNkWXZteGduZz09.

Fang, Z. and C. Sakellariou, 2011, A case of sticky floors: gender wage differentials in Thailand. *Asian Economic Journal*, **25**, pp. 35–54.

Finnie, R. and M. Frenette, 2003, Earning differences by major field of study: evidence from three cohorts of recent Canadian graduates. *Economics of Education Review*, **22**, pp. 179–

92.

Furno, M., 2014, Returns to education and gender gap. *International Review of Applied Economics*, **28(5)**, pp. 628–49.

García-Aracil A., 2008, College major and the gender earnings gap: a multi-country examination of postgraduate labour market outcomes. *Research in Higher Education*, **49**, pp. 733–57.

General Statistics Office of Vietnam, 2016a, Statistical yearbook of Vietnam 2016. [online; cited February 2019]. Available from URL: https://www.gso.gov.vn/default_en.aspx?tabid=515&idmid=5&ItemID=18533.

General Statistics Office of Vietnam, 2016b, Report on labour force survey: Quarter 4. [online; cited February 2019]. Available from URL: https://www.gso.gov.vn/default_en.aspx?tabid=515&idmid=5&ItemID=18374.

Gerhart, B., 1990, Gender differences in current and starting salaries: the role of performance, college major. *Industrial and Labor Relations Review*, **43**, pp. 418–33.

Government of India, Ministry of Human Resource Development, 2017, AISHE report 2017-18. [online; cited February 2019]. Available from URL: http://mhrd.gov.in/aishe-report-2017-18.

Grogger, J. and E. Eide, 1995, Changes in college skills and the rise in the college wage premium. *The Journal of Human Resources*, **30**, pp. 280–310.

Gustafsson, B., S. Li, 2000, Economic transformation and the gender earnings gap in urban China. *Journal of Population Economics*, **13(2)**, pp. 305–29.

Jones, F.L., J. Kelley, 1984, Decomposing differences between groups. *Sociological Methods and Research*, **12(3)**, pp. 323–43.

Kim, M.J., 2013, Kankoku ni okeru koyouhokenseido to shitugyoushashienseisaku no genjyou to kadai (situation of employment insurance system and support policy for unemployment in Korea). *Research of Overseas Social Welfare, National Institute of Population and Social Security Research. Summer 2013*, **183**, pp. 36–58.

Korean statistical information service, 2018. [online; cited February 2019]. Available from URL: http://kosis.kr/eng/

Lee, J.W., D. Wie, 2017, Wage structure and gender earnings differentials in China and India. *World Development*, **97**, pp. 313–29.

Lindley, J., S. Machin, 2015, Growth in within graduate wage inequality: the role of subjects, cognitive skill dispersion and occupational concentration. *Labour Economics*, **37**, pp. 101–

11.

Lindley, J., S. Machin, 2016, The rising postgraduate wage premium. *Economica*, **83(330)**, pp. 281–306.

Machin, S., P.A. Puhani, 2003, Subject of degree and the gender wage differential: evidence from the UK and Germany. *Economics Letters*, **79(3)**, pp. 393–400.

Meng, X., 2018, Chuugoku ni okeru koutoukyouikukikansotugyousei no shuugyou no gennjyou to kadai heno taiou (Support for the situation and problems of workers with higher education in China). *Overseas Labor Information 18-03: Report of the 15th North-east Asia Labor Forum*. [online; cited February 2019]. Available from URL: https://www.jil.go.jp/foreign/report/2018/pdf/18-03_02.pdf

Milanovic, B., 2006, Inequality and determinants of earnings in Malaysia, 1984-1997. *Asian Economic Journal*, **20**, pp. 191–216.

Min, Q., J. Brown, S. Padmadas, L. Bohua, Q. Jianan, J. Falkingham, 2016, Gender inequalities in employment and wage-earning among internal labour migrants in Chinese cities. *Demographic Research*, **34**, pp. 175–202.

Ministry of Health, Labour and Welfare, Japan, 2014, *Report of overseas situation 2014*. [online; cited February 2019]. Available from URL: https://www.mhlw.go.jp/wp/hakusyo/kaigai/18/dl/t4-03.pdf

Ministry of Health, Labour and Welfare, Japan, 2017, Report of overseas situation 2017. [online; cited February 2019]. Available from URL: http://www.mhlw.go.jp/wp/hakusyo/kaigai/18/dl/t4-03.pdf

National Statistical Office, 2017, Thailand: Summary of the labor force survey in Thailand. [online; cited February 2019]. Available from URL: http://www.nso.go.th/sites/2014en/Survey/social/labour/LaborForce/2017/Feb2017Eng.pdf

O'Leary, N.C., P.J. Sloane, 2005, The return to a university education in Great Britain. *National Institute Economic Review*, **193(1)**, pp. 75–89.

Oaxaca, R., 1973, Male–female wage differentials in urban labor markets. *International Economic Review*, **14(3)**, pp. 693–709.

Parey, M. and F. Waldinger, 2011, Studying abroad and the effect on international labour market mobility: Evidence from the introduction of ERASMUS. *The Economic Journal*, **121**, pp. 194–222.

Rani, P. G., 2014, Disparities in earnings and education in India. *Cogent Economics & Finance*, **2**, 941510.

Recruit Works Institute, 2013, Analysis of working in Asian countries. *Works Report 2013*.

Sebastian, A., 2008, Gender, education and employment: an analysis of higher education and labour market outcome in Kerala. *Indian Journal of Labour Economics*, **51(4)**, pp. 871–85.

Stanley, T.D., Jarrell, S.B., 1998, Gender wage discrimination bias? A meta-regression analysis. *The Journal of Human Resources*, **33(4)**, pp. 947–73.

Statistics Indonesia, 2018, Labor force situation in Indonesia. [online; cited February 2019]. Available from URL: https://www.bps.go.id/publication.html

Su, B., Heshmati, A., 2011, Analysis of gender wage differential in China's urban labor market, *IZA DP*, 6252. [online; cited February 2019]. Available from URL: http://ftp.iza.org/dp6252.pdf

UNESCO, 2014, Higher education in Asia; expanding out and expanding up, UNESCO institute for statistics, Canada.

Walker, J., A. Vignoles, M. Collins, 2010, Higher education academic salaries in the UK. *Oxford Economic Papers*, **62(1)**, pp. 12–35.

Weichselbaumer, D., R. Winter-Ebmer, 2005, A meta-analysis of the international gender wage gap. *Journal of Economic Surveys*, **19(3)**, pp. 479–511.

Winsborough, H.H., Dickinson, P., 1971, Components of negro–white earnings differences. *Proceedings of the Social Statistics Section*. American Statistical Association, Washington, DC, 6–8.

Yoo, G., 2003, Women in the workplace: gender and wage differentials. *Social Indicators Research*, **62, 63**, pp.367-385.

Zafar, B., 2016, College major choice and gender gap. *Journal of Human Resources*, **48(3)**, pp. 545–95.

Figure 1. Earnings distributions for men and women in nine main cities in seven Asian countries

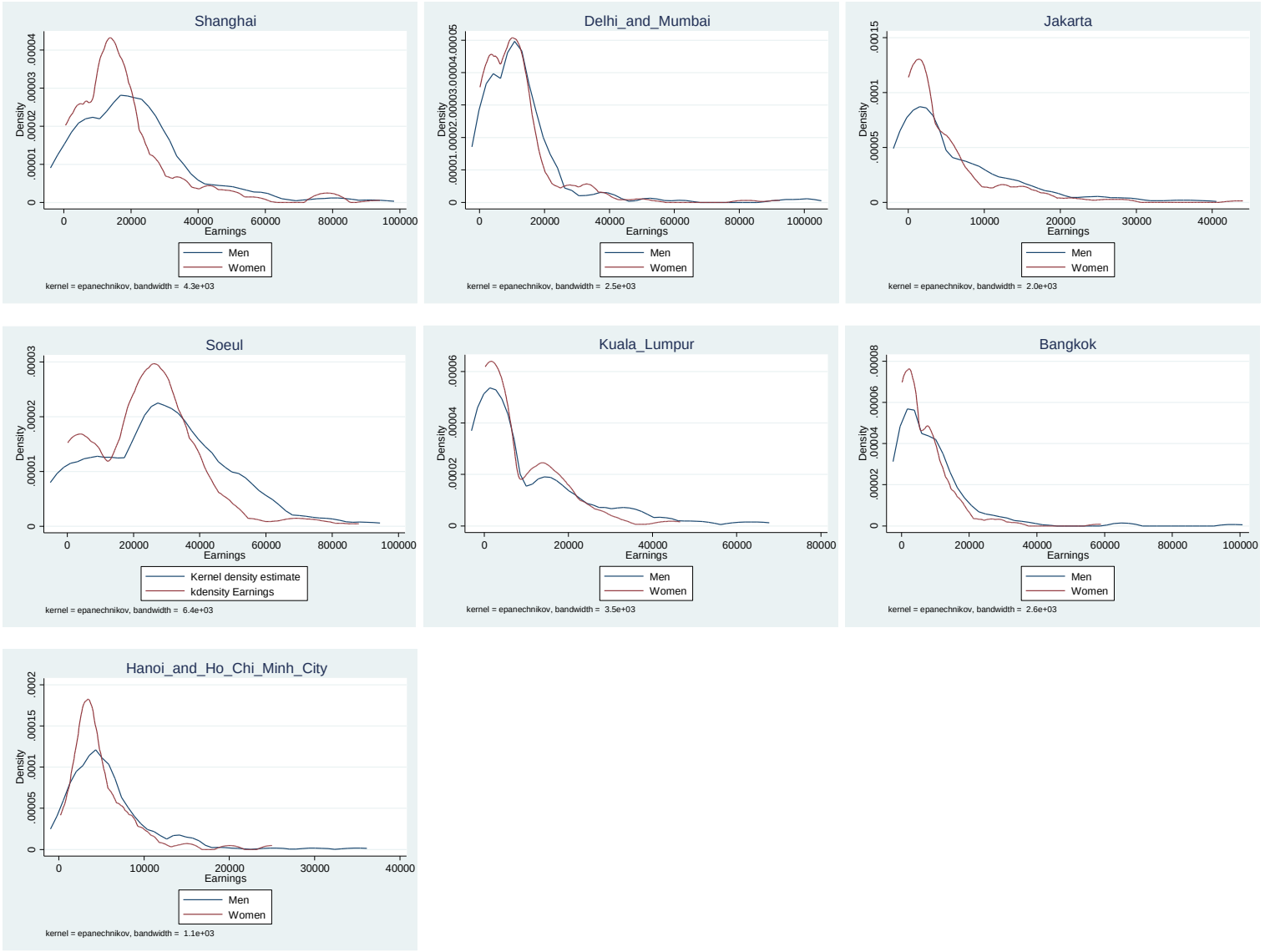

Table 1. Descriptive Statistics for Male Workers

Variable	*China*		*India*		*Indonesia*		*South Korea*		*Malaysia*		*Thailand*		*Vietnam*	
	Shanghai		*Delhi and Mumbai*		*Jakarta*		*Seoul*		*Kuala Lumpur*		*Bangkok*		*Hanoi and Ho Chi Minh City*	
	Mean	*Ranking*	*Mean*	*Ranking*	*Mean*	*Ranking*	*Mean*	*Ranking*	*Mean*	*Ranking*	*Mean*	*Ranking*	*Mean*	*Ranking*
Earnings (in USD)	21168.910	2	12982.990	3	6349.266	6	28767.460	1	10869.630	4	9283.308	5	5832.040	7
Postgraduate degree	0.099	3	0.400	1	0.038	5	0.099	2	0.033	6	0.139	7	0.092	4
Social science degree	0.372	2	0.310	4	0.374	1	0.270	6	0.232	7	0.272	5	0.310	3
Natural science degree	0.448	2	0.235	7	0.363	6	0.440	3	0.420	4	0.367	5	0.454	1
Other degree	0.103	7	0.380	1	0.225	4	0.135	6	0.337	2	0.283	3	0.201	5
Experience working abroad	0.197	3	0.310	1	0.143	4	0.064	7	0.215	2	0.122	6	0.138	5
Experience studying abroad	0.072	4	0.045	5	0.088	2	0.213	1	0.083	3	0.028	7	0.029	6
Years of tenure	4.511	4	4.260	6	4.434	5	3.652	7	4.608	2	5.522	1	4.517	3
Manager	0.596	1	0.485	2	0.291	5	0.220	7	0.326	4	0.228	6	0.460	3
Experience changing jobs	0.538	3	0.520	5	0.527	4	0.404	7	0.619	1	0.539	2	0.454	6
Full-time employee	0.978	1	0.855	5	0.841	7	0.936	3	0.939	2	0.850	6	0.925	4
Permanent employee	0.726	6	0.795	3	0.764	4	0.915	1	0.890	2	0.756	5	0.592	7
Foreign-affiliated company	0.269	1	0.230	2	0.104	6	0.014	7	0.199	3	0.133	5	0.178	4
Public employee	0.063	5	0.040	7	0.121	3	0.064	4	0.171	3	0.078	6	0.253	1
Company exective/director	0.139	2	0.110	3	0.011	7	0.021	6	0.144	1	0.028	5	0.063	4
Self-employed/family employee	(omitted)		0.115	3	0.121	1	0.043	6	0.050	5	0.133	2	0.052	4
Married	0.726	1	0.615	3	0.698	2	0.468	6	0.575	5	0.322	7	0.575	4
Children	0.507	2	0.445	3	0.511	1	0.312	6	0.425	4	0.172	7	0.414	5
Living with parents	0.256	7	0.525	1	0.264	6	0.340	3	0.271	5	0.406	2	0.333	4
Sample size	223		200		182		141		181		180		174	

Table 2. Descriptive Statistics for Female Workers

Variable	*China*		*India*		*Indonesia*		*South Korea*		*Malaysia*		*Thailand*		*Vietnam*	
	Shanghai		*Delhi and Mumbai*		*Jakarta*		*Seoul*		*Kuala Lumpur*		*Bangkok*		*Hanoi and Ho Chi Minh City*	
	Mean	*Ranking*	*Mean*	*Ranking*	*Mean*	*Ranking*	*Mean*	*Ranking*	*Mean*	*Ranking*	*Mean*	*Ranking*	*Mean*	*Ranking*
Earnings (in USD)	17521.510	2	11122.140	3	4745.406	7	23543.870	1	7887.929	4	6566.612	5	4887.806	6
Postgraduate degree	0.089	3	0.408	1	0.068	5	0.076	2	0.042	7	0.071	4	0.044	6
Social science degree	0.453	1	0.333	5	0.415	4	0.261	7	0.313	6	0.429	2	0.428	3
Natural science degree	0.302	2	0.305	1	0.273	4	0.217	6	0.295	3	0.196	7	0.222	5
Other degree	0.093	7	0.197	4	0.193	5	0.140	6	0.349	1	0.261	2	0.200	3
Experience working abroad	0.151	1	0.127	2	0.080	4	0.032	7	0.102	3	0.076	5	0.072	6
Experience studying abroad	0.036	7	0.042	6	0.114	3	0.223	1	0.175	2	0.060	4	0.044	5
Years of tenure	4.680	2	4.535	3	4.057	7	4.153	6	4.229	5	4.734	1	4.500	4
Manager	0.520	1	0.469	2	0.284	4	0.178	6	0.253	5	0.158	7	0.311	3
Experience changing jobs	0.564	3	0.432	7	0.557	4	0.478	5	0.602	2	0.630	1	0.450	6
Full-time employee	0.987	1	0.883	4	0.733	7	0.898	3	0.867	6	0.875	5	0.933	2
Permanent employee	0.707	5	0.798	4	0.705	6	0.828	1	0.801	3	0.821	2	0.544	7
Foreign-affiliated company	0.364	1	0.197	2	0.108	6	0.038	7	0.187	3	0.114	5	0.156	4
Public employee	0.040	7	0.075	6	0.108	3	0.108	3	0.133	2	0.098	5	0.228	1
Company exective/director	0.089	3	0.094	2	0.028	5	0.013	7	0.145	1	0.027	6	0.033	4
Self-employed/family employee	0.009	7	0.085	4	0.205	1	0.057	5	0.120	2	0.103	3	0.139	6
Married	0.707	1	0.671	2	0.500	5	0.382	6	0.542	4	0.277	7	0.606	3
Children	0.467	2	0.568	1	0.313	5	0.185	7	0.446	4	0.174	6	0.456	3
Living with parents	0.347	6	0.441	2	0.364	5	0.459	1	0.265	7	0.375	4	0.400	3
Sample size	225		213		176		157		166		184		180	

Note: USD: United States dollars

Table 3. Estimation Results of the Earnings Function for Men

Independent variable	*China*	*India*	*Indonesia*	*South Korea*	*Malaysia*	*Thailand*	*Vietnam*
	Shanghai	*Delhi and Mumbai*	*Jakarta*	*Seoul*	*Kuala Lumpur*	*Bangkok*	*Hanoi and Ho Chi Minh City*
Postgraduate degree	9011.891**	2724.278	1578.252	13000.000***	-552.557	308.076	-559.896
	(4001.168)	(2141.296)	(4515.029)	(4759.983)	(4060.643)	(3036.590)	(1233.077)
Social science degree	5734.232	-1200.000	-976.111	9604.570*	-6700.000*	2809.066	2590.977*
	(5493.985)	(2924.869)	(3176.503)	(5109.244)	(3775.119)	(3389.532)	(1402.919)
Natural science degree	5502.276	-695.938	-740.618	8377.389*	-5900.000*	2339.351	1758.684
	(5147.245)	(3293.575)	(3114.753)	(4979.68)	(3529.076)	(2964.947)	(1335.872)
Other degree	1745.245	2892.035	-727.983	1807.79	-5700.000	2878.978	1415.033
	(6150.562)	(3845.998)	(3180.090)	(5932.248)	(3619.766)	(3676.114)	(1698.993)
Experience working abroad	7798.449**	1986.732	1877.896	-8000.000	427.247	4935.002	3552.931**
	(3314.220)	(2350.536)	(2065.597)	(6009.037)	(2858.852)	(4064.817)	(1414.433)
Experience studying abroad	2157.289	1010.600	1125.943	9052.859**	8700.371	-2500.000	68.399
	(4443.955)	(3809.222)	(2461.507)	(4016.344)	(5266.363)	(3250.378)	(1363.787)
Years of tenure	208.660	-271.937	162.678	1053.917*	691.203*	-308.016	131.602
	(291.983)	(334.603)	(160.254)	(623.466)	(407.659)	(256.398)	(166.486)
Manager	5391.039**	5879.370***	4224.392***	8769.911*	13000.000***	8477.620**	1415.737*
	(2140.523)	(2063.515)	(1476.055)	(4661.302)	(2640.264)	(3490.379)	(718.402)
Experience changing jobs	4060.756**	-149.151	-98.078	1876.205	1868.876	-1300.000	869.853
	(2048.915)	(1878.714)	(1137.705)	(4096.798)	(1967.345)	(1929.206)	(740.198)
Foreign-affiliated company	5934.978**	531.021	5356.315**	1031.734	1662.877	3710.133	850.780
	(2369.036)	(2681.947)	(2317.014)	(4324.263)	(2667.730)	(2960.074)	(1146.759)
Intercept	7338.186	995.637	-1300.000	15000.000	15000.000	3299.842	7762.502
	(8335.488)	(4461.832)	(3287.767)	(14000.000)	(9413.445)	(3885.142)	(6614.715)
Type of employment	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Lifestyle attribute	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	223	200	182	141	181	180	174
R^2	0.302	0.141	0.221	0.275	0.292	0.173	0.235

Notes: Robust standard errors are in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

Table 4. Estimation Results of the Earnings Function for Women

Independent Variable	*China*	*India*	*Indonesia*	*South Korea*	*Malaysia*	*Thailand*	*Vietnam*
	Shanghai	*Delhi and Mumbai*	*Jakarta*	*Seoul*	*Kuala Lumpur*	*Bangkok*	*Hanoi and Ho Chi Minh City*
Postgraduate degree	9868.972**	-437.498	33.617	-4300.000	-2200.000	6638.164*	-2300.000*
	(4995.168)	(1803.944)	(2015.460)	(4531.231)	(2354.726)	(3411.526)	(1230.053)
Social science degree	3160.307	3397.228	1433.444	3698.870	-4100.000	1033.277	177.936
	(2693.009)	(2599.459)	(1211.692)	(3370.990)	(5600.420)	(1741.010)	(953.843)
Natural science degree	5546.998*	3343.702**	940.722	8113.129**	-3700.000	3179.187	441.121
	(2879.766)	(1517.711)	(1171.723)	(3852.830)	(5465.831)	(2110.537)	(1134.148)
Other degree	5394.440	3776.467*	345.603	7218.046	-5200.000	2824.435	78.574
	(3973.910)	(2094.634)	(1094.804)	(5160.409)	(5388.839)	(1787.836)	(988.310)
Experience working abroad	5501.105	130.747	443.612	-7800.000	-1600.000	-414.992	2116.977
	(3812.461)	(2459.741)	(1191.833)	(9267.388)	(2891.195)	(2096.704)	(1742.575)
Experience studying abroad	4440.053	4810.136	-261.556	5607.397*	1639.703	8267.531*	2977.485**
	(4137.705)	(3059.288)	(1338.245)	(3304.737)	(2263.309)	(4675.002)	(1474.938)
Years of tenure	1126.845***	612.965*	578.989***	765.049	762.509***	-19.932	126.542
	(422.451)	(312.096)	(197.576)	(496.230)	(250.522)	(166.049)	(96.566)
Manager	4078.502**	4726.055***	1144.819	3980.985	3060.849	6242.411**	2332.607***
	(2047.275)	(1660.944)	(1215.976)	(5180.966)	(1873.605)	(2529.683)	(785.579)
Experience changing jobs	3460.593	-3300.000*	1108.551	71.365	3252.916**	-48.411	-193.767
	(2105.805)	(1889.180)	(997.820)	(2928.635)	(1617.302)	(1101.715)	(592.262)
Foreign-affiliated company	12000.000	1246.281	1602.316	-4800.000	458.347	1466.835	1063.500
	(5539.748)	(2064.782)	(1471.648)	(5826.321)	(2227.162)	(2398.346)	(826.367)
Intercept	-7700.000	4419.148	-694.415	3215.723	9528.351	1269.474	1916.614*
	(6705.164)	(2683.548)	(1780.537)	(6400.071)	(5969.324)	(2368.737)	(1142.587)
Type of employment	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Lifestyle attribute	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	225	213	176	157	166	184	180
R^2	0.266	0.200	0.216	0.173	0.130	0.239	0.185

Notes: Robust standard errors are in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

Table 5. Results of the Decomposition of Gender Earnings Differentials

City	*Total sample size*	*Male income prediction*	*Female income prediction*	*Difference*	*% of female/male earnings*	*Endowment*	*Coefficient*	*Interaction*
Shanghai	448	21168.910***	17521.520***	3647.396***	82.77	1716.212**	2458.272*	-527.087
		(1159.595)	(1081.170)	(1585.430)		(949.159)	(1542.152)	(995.648)
Delhi and Mumbai	413	12982.990***	11122.140***	1860.850	85.66	-489.668	844.568	1505.951
		(1063.986)	(846.156)	(1359.429)		(839.725)	(1545.025)	(1207.199)
Jakarta	358	6349.266***	4745.406***	1603.860***	74.73	-218.607	1289.948*	532.519
		(593.771)	(500.500)	(776.573)		(441.183)	(839.543)	(615.750)
Seoul	298	28767.460***	23543.870***	5223.589***	81.84	2349.719*	1857.073	1016.797
		(1705.079)	(1348.488)	(2173.870)		(1481.569)	(2584.586)	(2245.965)
Kuala Lumpur	347	10869.630***	7887.929***	2981.696***	72.56	147.066	2404.497**	430.132
		(1093.696)	(778.334)	(1342.377)		(601.140)	(1460.394)	(1072.129)
Bangkok	364	9283.308***	6566.612***	2716.696***	70.73	794.147	1927.475*	-4.920
		(939.990)	(591.194)	(1110.447)		(576.748)	(1257.366)	(932.333)
Hnoi and Ho Chi Minh City	354	5832.040***	4887.806***	944.234**	83.80	493.200*	343.539	107.495
		(402.487)	(309.143)	(507.509)		(305.209)	(580.482)	(457.533)

Notes: Standard errors are in parentheses. ***, **, and * indicate significance at the 5%, 10%, and 15% levels, respectively.

Table 6-1. Results for Endowment Effects

Variable	*China*	*India*	*Indonesia*	*South Korea*	*Malaysia*	*Thailand*	*Vietnam*
	Shanghai	*Delhi and Mumbai*	*Jakarta*	*Seoul*	*Kuala Lumpur*	*Bangkok*	*Hanoi and Ho Chi Minh City*
Postgraduate degree	96.378	3.697	-0.999	-98.989	19.421	452.966**	-110.524
	(274.457)	(25.536)	(57.440)	(187.443)	(56.282)	(259.806)	(97.035)
Social science degree	-256.414	-79.268	-58.980	30.911	333.792	-162.354	-20.895
	(280.676)	(167.011)	(101.922)	(192.331)	(379.410)	(285.627)	(106.382)
Natural science degree	811.016*	-234.608	84.580	1810.492**	-459.879	543.687*	102.252
	(524.603)	(227.200)	(163.984)	(932.824)	(527.817)	(374.956)	(229.382)
Other degree	52.896	690.402	11.091	-38.801	64.1040	63.447	0.090
	(157.377)	(509.659)	(58.985)	(290.096)	(269.417)	(139.003)	(3.557)
Experience working abroad	254.141	23.958	28.085	-248.996	-175.893	-19.145	139.104
	(237.079)	(451.616)	(113.042)	(307.556)	(314.226)	(96.901)	(102.776)
Experience studying abroad	160.700	13.210	6.728	-56.993	-150.567	-264.600	-46.772
	(215.164)	(97.633)	(40.853)	(271.255)	(195.503)	(192.058)	(64.053)
Years of tenure	-190.199	-168.694	218.422	-382.818	288.852	-15.716	2.181
	(351.551)	(212.092)	(201.496)	(364.154)	(286.830)	(132.474)	(45.299)
Manager	311.648	73.331	8.148	165.267	223.303	438.024*	346.763***
	(250.584)	(234.536)	(55.504)	(237.260)	(199.740)	(284.790)	(157.242)
Experience changing jobs	-91.109	-288.409	-32.531	-5.241	53.266	4.431	-0.779
	(173.235)	(225.926)	(65.833)	(207.085)	(173.278)	(107.097)	(10.606)
Foreign-affiliated company	-304.284	40.899	-5.702	116.289	5.568	28.167	24.040
	(243.659)	(86.51336)	(52.620)	(185.723)	(31.677)	(60.934)	(46.372)
Type of employment	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Lifestyle attribute	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Total endowment effects	1716.212**	-489.668	-218.607	2349.719*	147.066	794.147	493.200*
	(949.159)	(839.725)	(441.183)	(1481.569)	(601.140)	(576.748)	(305.209)

Notes: Standard errors are in parentheses. ***, **, and * indicate significance at the 5%, 10%, and 15% levels, respectively.

Table 6-2. Results for Coefficients Effects

Variable	*China*	*India*	*Indonesia*	*South Korea*	*Malaysia*	*Thailand*	*Vietnam*
	Shanghai	*Delhi and Mumbai*	*Jakarta*	*Seoul*	*Kuala Lumpur*	*Bangkok*	*Hanoi and Ho Chi Minh City*
Postgraduate degree	-76.184	1291.429	105.316	1297.358**	67.500	-447.234*	78.509
	(439.587)	(1116.264)	(253.535)	(679.535)	(282.586)	(273.244)	(95.203)
Social science degree	1166.846	-1523.069	-999.417	1542.253	-813.742	762.431	1032.245
	(2252.198)	(1620.484)	(1444.400)	(1610.857)	(3238.724)	(1774.043)	(974.774)
Natural science degree	-13.515	-1232.754	-458.547	57.228	-647.092	-164.315	292.791
	(1529.893)	(1525.071)	(934.034)	(1298.774)	(2995.651)	(818.109)	(509.331)
Other degree	-340.591	-174.395	-207.397	-758.125	-168.147	14.228	267.291
	(605.942)	(960.688)	(687.364)	(1026.538)	(3572.654)	(1103.054)	(478.405)
Experience working abroad	347.154	235.265	114.090*	-6.816	203.078	407.064*	103.707
	(587.829)	(439.057)	(193.854)	(318.325)	(381.762)	(280.919)	(120.565)
Experience studying abroad	-81.164	-160.543	157.670	768.096	1233.490**	-644.840*	-129.292
	(241.469)	(277.000)	(292.383)	(1127.322)	(750.577)	(415.101)	(128.064)
Years of tenure	-4297.105**	-4013.217**	-1688.899**	1199.633	-301.546	-1363.702	22.771
	(2320.351)	(2291.972)	(1025.779)	(3247.482)	(1833.183)	(1498.071)	(802.768)
Manager	682.519	541.462	874.878**	854.076	2418.568***	352.288	-285.248
	(1639.778)	(1292.754)	(492.518)	(1014.626)	(805.046)	(456.514)	(324.989)
Experience changing jobs	338.759	1349.951	-671.872	862.184	-833.759	-789.563	478.629
	(1833.003)	(1313.229)	(889.324)	(2154.293)	(1707.867)	(1453.011)	(485.887)
Foreign-affiliated company	1000.382	-141.037	405.261*	224.355	224.942	256.028	-33.089
	(1152.825)	(668.474)	(281.093)	(564.836)	(616.713)	(375.918)	(208.428)
Intercept	15022.260	-3423.512	-567.396	11727.560	4990.465	2030.368	5845.888*
	(17771.000)	(9272.962)	(4727.505)	(14312.730)	(15542.590)	(8807.616)	(3724.669)
Type of employment	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Lifestype attribute	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Total coefficient effects	2458.272*	844.568	1289.948*	1857.073	2404.497**	1927.475*	343.539
	(1542.152)	(1545.025)	(839.543)	(2584.586)	1460.394	(1257.366)	(580.482)

Notes: Standard errors are in parentheses. ***, **, and * indicate significance at the 5%, 10%, and 15% levels, respectively.