

Yahn-Shir Chen<sup>1</sup>, Li-Chun Huang<sup>2</sup>, Wun Hong Su<sup>3</sup>ECONOMIC ANALYSIS OF GENDER GAP COMPENSATION:  
EVIDENCE FROM TAIWANESE AUDITING INDUSTRY

*This study examines gender compensation discount or premium in Taiwanese auditing industry. Gender compensation and productivity gaps in audit firms are analyzed. Specifically, it is demonstrated that both compensations and productivity of male employees are higher than that of female employees. However, male employees are undercompensated while female employees are overcompensated, substantiating the existence of male compensation discount but female compensation premium in Taiwanese auditing industry. Based on the labor demand theory, this research substantially differs from prior studies which investigate the issue mostly from the perspective of labor supply.*

*Keywords:* audit firms; Taiwan; labour compensation; gender gap.

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ЕКОНОМІЧНИЙ АНАЛІЗ ГЕНДЕРНИХ РОЗРИВІВ В ОПЛАТІ  
ПРАЦІ: ЗА ДАНИМИ АУДИТОРСЬКОЇ ГАЛУЗІ ТАЙВАНЮ

*У статті досліджено гендерні розриви в оплаті праці на прикладі тайванських аудиторів. Гендерні розриви в оплаті проаналізовано відносно показників продуктивності праці. Доведено, що і продуктивність, і оплата праці чоловіків-аудиторів звичайно вище, ніж у жінок. Однак чоловіки переважно недоотримують за підвищену продуктивність, в той час як жінкам-аудиторам часто переплачують за нижчої продуктивності, що доводить існування завищених та занижених заробітних плат у сфері аудиту на Тайвані. Це дослідження відрізняється від попередніх досліджень гендерних розривів в оплаті праці також і тим, що аналізує проблему з позиції попиту на трудові ресурси, а не з точки зору їх пропозиції.*

*Ключові слова:* аудиторські фірми; Тайвань; оплата праці; гендерний розрив.

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ЭКОНОМИЧЕСКИЙ АНАЛИЗ ГЕНДЕРНЫХ РАЗРЫВОВ  
В ОПЛАТЕ ТРУДА: ПО ДАННЫМ АУДИТОРСКОЙ ОТРАСЛИ  
ТАЙВАНЯ

*В статье исследованы гендерные разрывы в оплате труда на примере тайваньских аудиторов. Гендерные разрывы в оплате проанализированы относительно показателей продуктивности труда. Доказано, что и продуктивность, и оплата труда мужчин-аудиторов обычно выше, чем у женщин. Однако мужчинам преимущественно недоплачивают за повышенную продуктивность, в то время как женщинам-аудитором зачастую переплачивают при меньшей продуктивности, что доказывает существование завышенных и заниженных зарплат в сфере аудита на Тайване. Данное исследование отличается от предыдущих исследований гендерных разрывов в оплате труда также и тем, что анализирует проблему с позиции спроса на трудовые ресурсы, а не с точки зрения предложения.*

*Ключевые слова:* аудиторские фирмы; Тайвань; оплата труда; гендерный разрыв.

**Introduction.** Audit firms are professional service organizations providing attestation services by auditors (Morris and Empson, 1998). Attestation services grant

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credibility to financial statements and lower information asymmetry between managers and investors, thus stimulating more sound development of capital markets. In Taiwan, the total number of professional employees in audit firms increased from 7,353 up in 1989 to 18,858 in 2010. Furthermore, the number of female employees rose from 3,837 in 1989 to 11,502 in 2010, thus showing that females are an important factor in operations of audit firms.

Auditing profession is a labor- and expertise-intensive industry. Human capital is the core resource of these firms. Excellent human capital produces quality of audit services accordingly. Gender salary gap is a worldwide issue which remains to be actual in both developing and developed economies. The equity theory states that employees desire their contributions to be commensurate with their compensations and employers must not discriminate employees in their compensations by gender. As a result, gender salary gap does not necessarily imply that gender compensations are unfair. Unfairness resides in equal productivities/contributions under unequal pay/compensations (Schultz, 1961).

Gender salary gap has been a critical issue investigated by numerous researchers. In line with the research on audit firms, the issues of gender gap focus mostly on the "glass ceiling phenomenon" which describes the barriers to female promotion. In particular, auditing profession pays more attention to female promotion due to two litigations about women's promotion to the partner status in audit firms, like the Hishon vs. King and Splading case in 1984 and the Hopkins vs. Price Waterhouse case in 1986. In the latter case, Hopkins argues that Price Waterhouse intentionally interprets its assertive behaviors as defending own beliefs, unable to listen to others opinions, strong personality, and making others unable to endure (Goldstein, 2006).

Limited prior studies in accounting relate to the investigation of gender salary gap and obtain mixed results (Hunton et al., 1996; Schaefer and Zimmer, 1995; Trapp et al., 1989; Whiting and Wright, 2001). Furthermore, surveys on differences in salaries reveal different perceptions by women and men auditors (Hunton et al., 1996; Trapp et al., 1989). Female human capital is inferior to that of males due to house-keeping responsibilities assumed to belong to women, thus resulting in lower productivities and thereby lower compensations as compared to men (Barker and Monks, 1998). C. Green and M. Ferber (2005) used the detailed National Longitudinal Survey of Youth (NLSY) information, particularly on work experience and job stability, to account for continuing substantial unexplained salary gap. They noted that salary gap can be accounted for by differences in human capital but 38% the gender differential remains unexplained. They argue it is important to learn whether these salary gaps are caused by differences in productivity.

Motivated by C. Green and M. Ferber (2005), this study aims to examine salary gaps from differences in productivity for male and female employees in Taiwanese audit firms. The labor demand theory states that employees' productivities depend on their contributions to an organization. Based on this perspective, this study employs the transcendental logarithmic (translog) revenue function to estimate employee productivities with which to examine (in)equality in compensations between male and female employees. Empirical results indicate that gender salary and productivity gaps exist in audit firms. Furthermore, this study presents evidence that male employees are undercompensated while female employees are overcompensated, thus proving

the existence of gender compensation discount and premium in Taiwanese auditing industry.

With such results, this study incrementally contribute to the related literature. Equipped with industrial long-term data which are sadly unavailable in many other countries, this study investigates the gender salary gap in the auditing industry from the perspective of labor demand theory. This is an improvement in data source and methodology over prior studies. This study thus clarifies the controversies over gender salary gap, particularly in the accounting-related studies. Furthermore, rare is the investigation of the gender gap issues in professional organizations. This study explores the issue by focusing on audit firms, a man-dominated professional field, to fill in this way the existing literature gap.

**Literature review.** Researchers have been exploring and investigating the issue of gender compensation gap for 4 decades already (Becker, 1957; Blinder, 1973; Oaxaca, 1973). Prior studies report the existence of significant salary gaps favouring men (Walkup and Fenzau, 1980; Schaefer and Zimmer, 1995; Hellerstein et al., 1999; Stedham et al., 2006; Kawaguchi, 2007). However, some also indicate that gender compensation discrimination is statistically insignificant (Hjælgeland and Klette, 1999; Hellerstein and Neumark, 1999; Ilmakunnas and Maliranta, 2005).

Using the 1997 Social Change Survey of Taiwan, C.C. Chen (2002) found gender salary differentials. C.L. Chen and C.M. Kuan (2006) reported that in Taiwan gender wage discrimination changes with wage level while low skilled female workers suffer the most. M. Hsu et al. (2006) reported that industrial structure changes because economic growth narrows male-female wage differentials. R.D. Chang and Y.W. Lou (2001) note that Taiwanese companies are reluctant to hire female auditors, leading to financial performance of female-owned audit firms inferior to that of male-owned ones.

In addition, some researchers suggest other reasons behind salary gap in terms of supply-side factors of labor market. For example, women work fewer hours, complete fewer years of on-the-job training and have less work experience (Blau and Ferber, 1986). Women spend fewer years with the same employers and are more likely to work part-time, and have more interrupted careers caused by such factors as child-bearing and other family responsibilities (Tomaskovic-Devey and Skaggs, 1999). Lower pay for women is presumably attributed to their relatively inferior productivity. Hence, differences in labor productivity account for part of gender salary gap (Green and Ferber, 2005).

**Empirical model.** Following R. Banker et al. (2003), this study specifies the following translog revenue function to estimate the marginal revenue product of male and female employees in audit firms:

$$\ln R = \beta_0 + \beta_1 \ln x_1 + \beta_2 \ln x_2 + \frac{1}{2} [\beta_{11} (\ln x_1)^2 + \beta_{22} (\ln x_2)^2] + \beta_{12} \ln x_1 \ln x_2 + \quad (1)$$

$$+ \varphi_1 \ln x_3 + \varphi_2 \ln edu + \varphi_3 \ln exp + \varphi_4 \ln age + \varepsilon,$$

where  $\ln R$  denotes the total revenues of audit firms;  $x_1$  and  $x_2$  are the number of male and female employees;  $\varepsilon$  is the error term. Other factors affecting productivity of audit firms are incorporated into the function as control variables, including total amount of fixed assets,  $x_3$  (Hicks, 1946), education level of employees,  $edu$  (Yang et

al., 2014), work experience of employees,  $exp$  (Fasci and Valdez, 1998), age of audit firms,  $age$  (Fasci and Valdez, 1998; Brucheler et al., 2004).

This study estimates equation (1) by iteration seemingly unrelated regressions (ITSUR) method in A. Zellner (1962) and calculates the following marginal revenue product for male and female employees:

$$MRP_1 = \frac{\partial R(\cdot)}{\partial x_1} = \frac{\partial \ln R}{\partial \ln x_1} \times \frac{R}{x_1} = (\beta_1 + \beta_{11} \ln x_1 + \beta_{12} \ln x_2) \times \frac{R}{x_1}; \quad (2)$$

$$MRP_2 = \frac{\partial R(\cdot)}{\partial x_2} = \frac{\partial \ln R}{\partial \ln x_2} \times \frac{R}{x_2} = (\beta_2 + \beta_{22} \ln x_2 + \beta_{12} \ln x_1) \times \frac{R}{x_2}, \quad (3)$$

where  $MRP_1$  and  $MRP_2$  measure the contributions (productivities) of male and female employees to audit firms' revenues.

In theory, different marginal revenue product ratios between inputs are equal to price ratios between inputs (Borjas, 2008). However, in a professional organization, such as audit firms, knowledge mostly exists in human capital, being fostered by experience and skills obtained from education and training (Lepak and Snell, 1999; Schultz, 1961). Auditors gain knowledge through formal academic education and learn expertise and skills through professional training. That is, auditors gain explicit (articulable) knowledge through formal education and tacit knowledge through training and work experience. Both kinds of knowledge are industry-specific knowledge. This establishes a barrier to prevent others from entering the market and makes auditing industry an incompletely competitive labor market. Accordingly, at the auditing market, employee salary payments are not equal to their marginal revenue product, resulting in a compensation premium or discount (Banker et al., 2003). Based on prior literature, this study expects that the ratio of marginal revenue product for males and females is not equal to the ratio of their compensation level. Accordingly, the relation between marginal revenue product and input price should be as follows:

$$\frac{MRP_2}{MRP_1} \neq \frac{W_2}{W_1}, \quad (4)$$

where  $W_1$  and  $W_2$  represent the compensations (salaries) of male and female employees respectively.

**Empirical results.** Empirical data for this study are taken from the 2004–2009 Survey Report of Audit Firms in Taiwan published by the Financial Supervisory Commission (FSC) annually with an annual response rate over 80%. The Report provides detailed information on the actual total annual compensations for male and female auditors, including partners, managers, auditor-in-charges, and staff assistants.

After deleting audit firms only hiring unisexual employees, this study reaches 132 audit firms, 792 (132 x 6) panel data observations. 132 audit firms account for 82%, 73% and 92% of total revenues, total number of employees and total salaries in auditing industry, respectively. Accordingly, the firms used in this study are an appropriate representative of Taiwanese auditing industry. The variables of output, capital input and compensations in this study are deflated by the yearly Consumer Price Index (CPI) to account for inflation.

This study estimates the parameters of equation (1) by ITSUR. These parameter estimates are then taken into the equations (2) and (3) to calculate marginal revenue product of male and female employees. Table 1 shows the assessment of equality in productivities and compensations between male and female employees. Panel A reports compensation gap between male and female employees. The average salaries of male employees ( $W_1$ ) (558,644 USD) are significantly higher than that of females ( $W_2$ ) (451,742 USD). The ratio of compensation level between female and male employees ( $W_2 / W_1$ ) equals 81%. Panel B exhibits the t-test results which reject the conditions that compensations of males equate that of females. The results are consistent with the previous studies, which indicate a salary gap between males and females (Malkiel and Malkiel, 1973; Becker, 1985; Wood et al., 1993; Schaefer and Zimmer, 1995).

Table 1. Estimates of compensations and productivities, authors'

	2004– 2009	2004	2005	2006	2007	2008	2009
<i>Pane A: Compensations and productivities (standard error in parentheses)</i>							
$W_1$	558,644 (292,630)	572,134 (278,736)	574,207 (343,558)	543,136 (283,814)	564,124 (286,406)	549,994 (286,204)	548,267 (286,204)
$W_2$	451,742 (164,418)	458,289 (183,722)	451,113 (159,448)	454,494 (164,518)	449,708 (169,609)	443,393 (152,063)	453,455 (152,063)
$MRP_1$	637,230 (490,326)	610,960 (462,091)	634,959 (468,587)	641,237 (483,479)	637,656 (508,171)	649,688 (511,496)	648,880 (513,776)
$MRP_2$	327,077 (248,120)	318,187 (242,974)	328,274 (235,011)	327,613 (240,043)	331,089 (250,957)	327,240 (255,605)	330,058 (267,252)
$W_1 - W_2$	106,902	113,845	123,095	88,641	114,416	106,601	94,812
$W_2 / W_1$	81%	80%	79%	84%	80%	81%	83%
$MRP_1 - MRP_2$	310,153	292,772	306,685	313,624	306,568	322,448	318,822
$MRP_2 / MRP_1$	51%	52%	52%	51%	52%	50%	51%
<i>Panel B: Test of equality of gender compensations and productivities</i>							
Significance level of t test							
$W_1 = W_2$	0.0000	0.0001	0.0003	0.0022	0.0001	0.0002	0.0007
$MRP_1 = MRP_2$	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Note:  $W_1$  and  $W_2$  represent compensations of male and female employees while  $MRP_1$  and  $MRP_2$  denote productivities of male and female employees accordingly.

Similarly, the average productivities of male employees ( $MRP_1$ ) are 637,230 USD and that of females ( $MRP_2$ ) are 327,077 USD.  $MRP_1$  is significantly higher than  $MRP_2$ . The ratio of productivities between female and male employees ( $MRP_2 / MRP_1$ ) is 51%. Because the ratio of productivities (51%) is less than that of compensation level (81%), male employees are undercompensated while female employees are overcompensated. That is, male employees are paid less than equally productive female employees. This proves that salaries male employees actually have are significantly lower than the salaries they should have against their productivities. Also, this documents the existence of male compensation discount and female compensation premium in Taiwanese auditing industry.

**Discussion.** Prior studies closely related to this study are R.D. Chang and Y.W. Lou (2001), who conducted a single-period survey to investigate sexual discrim-

ination in Taiwanese audit firms. They report the existence of gender salary gap and gender discrimination in Taiwanese audit firms. This study extends them by constructing a six-year panel data to estimate translog revenue function, an improvement in empirical data and methodology. In addition, by comparing the ratios of productivity and compensation levels, this study further reports that males are undercompensated but females are overcompensated. Based on the perspective of labour demand theory, this study simultaneously uses both actual salaries and productivities of males and females to investigate the issue of gender compensation premium or discount. We substantially differ from prior literatures that investigated the issue from the perspective of labor supply (Olson and Frieze, 1986; Ward et al., 1986; Trapp et al., 1989; Pierce-Brown, 1998; Chang and Lou, 2001).

Previous studies found that women spend fewer years with same employers and are more likely to work part-time and have more interrupted careers caused by various family factors (Tomaskovic-Devey and Skaggs, 1999). Women work fewer hours, complete fewer years of on-the-job training and have less work experience (Blau and Ferber, 1986). Moreover, numerous literature document that some factors result in lower productivity of females, such as lack of mentor assistance (Whiting and Wright, 2001), sexual harassment (Stanko and Schneider, 1999), personal attributes (Schwartz, 1989; Morrison and Von Glinow, 1990; Kirkham, 1992), or sexual discrimination (Broadbent and Kirkham, 2008). These factors further lead to the ignorance about female actual productivity by employers and the failure of females to gain necessary skills and expertise, which makes them leave firms earlier (Hom and Kinicki, 2001; Maertz and Campion, 2004). Procurement and upgrade of female human capital are inferior to that of males due to child-rearing and other family responsibilities (Barker and Monks, 1998). Productivity of women is thus lower than that of men and thereby women are rewarded with lower compensations. Hence, differences in labour productivity account for part of gender salary gap (Trapp et al., 1989; Reed and Kratchman, 1990; Silverstone, 1990; Green and Ferber, 2005).

Because productivity of male employees is higher than that of females as shown in this study, male employees have more promotion opportunities. Beginning in 2004, the dataset of this study has provided detailed information on employees and subdivided them into 3 categories by status, including manager, auditor-in-charge, and staff assistant. Managers are a higher rank position and the remaining two are lower ones. As shown in Table 2, total male and female employees are 19,766 and 64,705, respectively. Males account for 23% (19,766 / 84,471) of the total employees. However, 36%, 24% and 19% of the total numbers of managers, auditors-in-charge and staff assistants are male employees. Further analyses indicate that 28.3% (933 / 3,295) of male employees serve as managers but the number for females is only 15% (1,625 / 10,785). This reveals that the ratio of male managers is higher than that of male auditors-in-charge and staff assistants. The above findings probably result from the fact that males are superior in productivity than females and thereby more of them are promoted to manager status. In practice, male and female employees with the same education level are paid equally in their initial employment. Recently, the initial monthly salaries for staff assistants with bachelor and master degree are 1,100 USD and 1,230, respectively. Subsequently, they are compensated by their contributions to their firms. Taiwanese audit firms always raise and seldom cut employee

salaries, female employees thus are overcompensated and female compensation premium arises.

Table 2. Position distribution of male and female employees, authors'

Year	Managers				Auditors-in-charge				Staff assistants			
	Male		Female		Male		Female		Male		Female	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
2004	698	36	1,238	64	617	27	1,634	73	1,520	19	6,449	81
2005	766	36	1,355	64	696	27	1,841	73	1,591	18	7,040	82
2006	965	38	1,598	62	544	22	1,889	78	1,692	19	7,422	81
2007	1,007	37	1,742	63	598	23	2,039	77	1,816	20	7,466	80
2008	1,080	37	1,861	63	623	23	2,123	77	1,917	20	7,631	80
2009	1,082	36	1,955	64	676	24	2,141	76	1,878	21	7,281	79
Average	933	36	1,625	64	626	24	1,945	76	1,736	19	7,215	81

Is it unfair for male employees to be undercompensated? In audit firms, auditors comprise partners, managers, auditors-in-charge, and staff assistants. After acquiring academic qualification in accounting, most professionals enter their careers as staff assistants in such firms. They continue to learn and gain experience and expertise through learning by doing. The average years of experience for partners, managers, auditors-in-charge, and assistants are over 10 years, 5–10 years, 2–5 years and 0–2 years, respectively (Elder et al., 2010). In practice, employees who contribute most to audit firms are rewarded with partner status and thus own stakes in their firms. The data set of this study indicates that 68.32% of partners are males during the sample period. At first glance, it seems unfair for male employees to be undercompensated. However, when undercompensated male employees learn much expertise and accumulate much work experience over 10 years, they are promoted to be a partner and thus share operating profits. Before male employees are promoted to this partner status, their genuine total compensations include salaries from the firms and the learning cost paid to the firms. Consequently, we argue it is unfair but deserved for male employees to be undercompensated before they are promoted to the partner status.

**Conclusions.** This study investigates the relation between compensation and productivity of male and female employees in audit firms of Taiwan. We discovered both compensations and productivity of male employees are higher than that of female ones, as an evidence of gender salary and productivity gaps. Male employees are undercompensated but female employees are overcompensated, thus representing male compensation discount and female compensation premium in Taiwanese auditing industry.

Our findings are subject to the following limitations. First, prior studies ascribe gender compensation differentials and discrimination to cultural factors mostly. Due to data unavailability, this study excludes many factors affecting compensations and exclusively focuses on productivity. Next, female employees using have higher turnover, which leaves mostly younger female employees in audit firms. The dataset provides salary information for the total of male and female employees. We are unable to separate the salary data of younger employees from that of senior ones. This will bias the calculations of compensation and productivity levels of male and female employees.

This study investigates Taiwanese auditing industry as a whole. However, varied size and life cycles lead to differences in risk audit firms face and management strate-

gies audit firms take. This provides further effects on audit firms productivity. Future study can take these cases into account while examining the gender salary gap in the auditing industry. In addition, managers, auditors-in-charge and staff assistants are 3 typical categories of professionals in audit firms. This study combines them to estimate marginal revenue products for male and female employees. Future study can separately estimate marginal revenue products for these 3 professional groups for male and female employees. Comparing compensations and productivity indices will result in further knowledge on the actual gender salary gap.

### References:

- Banker, R., Chang, H., Cunningham, R.* (2003). The Public Accounting Industry Production Function. *Journal of Accounting and Economics*, 35(2): 255–281.
- Barker, P., Monks, K.* (1998). Irish Women Accountants and Career Progression: A Research Note. *Accounting, Organizations and Society*, 23(8): 813–823.
- Becker, G.* (1957). *The Economics of Discrimination*. Chicago: University of Chicago Press.
- Becker, G.* (1985). Human Capital, Effort, and the Sexual Division of Labor. *Journal of Labor Economics*, 3(1): 1–32.
- Blau, F., Ferber, M.* (1986). *The Economics of Women, Men, and Work*. Englewood Cliffs, N.J.: Prentice-Hall.
- Blinder, A.* (1973). Wage Discrimination: Reduced Form and Structural Estimates. *The Journal of Human Resources*, 8(4): 436–455.
- Borjas, G.* (2008). *Labor Economics*. 4th ed. Dubuque, IA: McGraw-Hill Irwin.
- Broadbent, J., Kirkham, L.* (2008). Glass Ceiling, Glass Cliffs or New Worlds? Revisiting Gender and Accounting. *Accounting, Auditing & Accountability Journal*, 21(4): 465–473.
- Brucheler, V., Maijoor, S., Witteloostuijn, A.* (2004). Auditor Human Capital and Audit Firm Survival the Dutch Audit Industry in 1930–1992. *Accounting, Organizations and Society*, 29(7): 627–646.
- Chang, R.D., Lou, Y.W.* (2001). An Economic Analysis of the Sex-salary Difference and a Perception Study of the Sexual Discrimination for the Public Accounting Firms. *Journal of Contemporary Accounting*, 2(1): 77–98 (in Chinese).
- Chen, C.C.* (2002). Human Capital Difference or Gender Discrimination? Exploration on Gender Stratification of Labor Market. *Journal of Social Sciences and Philosophy*, 14(3): 363–407 (in Chinese).
- Chen, C.L., Kuan, C.M.* (2006). Taiwan's Wages Equation and Gender Wage Discrimination: Evidence from Quantile Regression Analysis. *Academia Economic Papers*, 34(4): 435–468 (in Chinese).
- Elder, R., Beasley, M., Arens, A.* (2010). *Auditing and Assurance Services: An Integrated Approach*. Upper Saddle River, NJ: Pearson Education.
- Fasci, M., Valdez, J.* (1998). A Performance Contrast of Male-and Female-Owned Small Accounting Practices. *Journal of Small Business Management*, 36(3): 1–7.
- Goldstein, L.* (2006). *Gender Stereotyping and the Workplace: Price Waterhouse vs. Hopkins* (1989). *The Constitutional and Legal Rights of Women*. 3rd ed. Los Angeles: Roxbury.
- Green, C., Ferber, M.* (2005). Do Detailed Work Histories Help to Explain Gender and Race/Ethnic Wage Differentials? *Review of Social Economy*, 63(1): 55–85.
- Hageland, T., Klette, T.J.* (1999). Do Higher Wages Reflect Higher Productivity? Education, Gender and Experience Premiums in a Matched Plant-Worker Data Set. *Contributions to Economic Analysis*, 241: 231–259.
- Hellerstein, J., Neumark, D.* (1999). Sex, Wages and Productivity: An Empirical Analysis of Israeli Firm-Level Data. *International Economic Review*, 40(1): 95–123.
- Hellerstein, J., Neumark, D., Troske, K.* (1999). Wages, Productivity, and Worker Characteristics: Evidence from Plant-Level Production Functions and Wage Equations. *Journal of Labor Economics*, 17(3): 409–446.
- Hicks, J.R.* (1946). *Value and Capital*. UK: Oxford University Press.
- Hom, P., Kinicki, A.* (2001). Toward a Greater Understanding of How Dissatisfaction Drives Employee Turnover. *Academy of Management Journal*, 44(5): 975–987.
- Hsu, M., Chen, B.L., Fang, J.D.* (2006). The Effects of Industrial Structure and Sex Discrimination on Changes in Female and Male Wage Differential in Taiwan 1978–2003. *Taiwan Economic Review*, 34(4): 505–539 (in Chinese).



- Hunton, J., Neidermeyer, P., Wier, B.* (1996). Retraction: Hierarchical and Gender Differences in Private Accounting Practice. *Accounting Horizons*, 10(2): 14–31.
- Itmakunnas, P., Maliranta, M.* (2005). Technology, Labour Characteristics and Wage-Productivity Gaps. *Oxford Bulletin of Economics and Statistics*, 67(5): 623–644.
- Kawaguchi, D.* (2007). A Market Test for Sex Discrimination: Evidence from Japanese Firm-Level Panel Data. *International Journal of Industrial Organization*, 25(3): 441–460.
- Kirkham, L.* (1992). Integrating Herstory and History in Accountancy. *Accounting, Organizations and Society*, 17(3–4): 287–297.
- Lepak, D., Snell, S.* (1999). The Human Resource Architecture: Toward A Theory of Human Capital Allocation and Development. *Academy of Management Review*, 24: 31–48.
- Maertz, C., Campion, M.* (2004). Profiles in Quitting: Integrating Process and Content Turnover Theory. *The Academy of Management Journal*, 47(4): 566–582.
- Malkiel, B., Malkiel, J.* (1973). Male-Female Pay Discrimination in Professional Employment. *American Economics Review*, 63(4): 693–705.
- Morris, T., Empson, L.* (1998). Organization and Expertise: An Exploration of Knowledge Bases and the Management of Accounting and Consulting Firms. *Accounting, Organizations and Society*, 23(5–6): 609–624.
- Morrison, A., Von Glinow, M.* (1990). Women and Minorities in Management. *The American Psychologist*, 45(2): 200–208.
- Oaxaca, R.* (1973). Male-Female Wage Differentials in Urban Labor Markets. *International Economics Review*, 14(3): 693–709.
- Olson, J., Frieze, I.H.* (1986). Women Accountants Do They Earn as Much as Men? *Management Accounting*, 67(12): 27–31.
- Pierce-Brown, R.* (1998). An Application of Human Capital Theory to Salary Differentials in the Accounting Profession. *Women in Management Review*, 13(5): 192–200.
- Reed, S., Kratchman, S.* (1990). The Effects of Changing Role Requirements on Accountants. *Advances in Public Interest Accounting*, 3: 107–136.
- Schaefer, J., Zimmer, M.* (1995). Gender and Earnings of Certain Accountants and Auditors: A Comparative Study of Industries and Regions. *Journal of Accounting and Public Policy*, 14(4): 265–291.
- Schultz, T.* (1961) Investment in Human Capital. *The American Economic Review*, 51(1): 1–17.
- Schwartz, F.* (1989). Management Women and the New Facts of Life. *Harvard Business Review*, 4(5): 65–76.
- Silverstone, R.* (1990). *Recruitment and Retention of Chartered Accountants in England and Wales*. London: Institute of Chartered Accountants.
- Stanko, B., Schneider, M.* (1999). Sexual Harassment in the Public Accounting Profession? *Journal of Business Ethics*, 18(2): 185–200.
- Stedham, Y., Yamamura, J., Satoh, M.* (2006). Gender and Salary: A Study of Accountants in Japan. *Asia Pacific Journal of Human Resource Management*, 44(1): 46–66.
- Tomaskovic-Devey, D., Skaggs, S.* (1999). Workplace Gender and Racial Composition and Productivity: An Establishment-Level Test of the Statistical Discrimination Hypothesis. *Work and Occupations*, 26(4): 422–445.
- Trapp, M., Hermanson, R., Turner, D.* (1989). Current Perceptions of Issues Related to Women Employed in Public Accounting. *Accounting Horizons*, 3(1): 71–85.
- Walkup, M., Fenzau, D.* (1980). Women CPAs: Why Do They Leave Public Accounting? *The Woman CPA*, 42(2): 3–6.
- Ward, S.P., Moseley, O.B., Ward, D.R.* (1986). The Women CPA: A Question of Job Satisfaction. *The Woman CPA*, 48: 4–10.
- Whiting, R., Wright, C.* (2001). Explaining Gender Inequity in the New Zealand Accounting Profession. *The British Accounting Review*, 33(2): 191–222.
- Wood, R., Corcoran, M., Courant, P.* (1993). Pay Differences among the Highly Paid: The Male-Female Earnings Gap in Lawyers' Salaries. *Journal of Labor Economics*, 11(3): 417–441.
- Yang, Y.F., Yang, L.W., Chen, Y.S.* (2014). Effects of Service Innovation on Financial Performance of Small Audit Firms in Taiwan. *International Journal of Business and Finance Research*, 8(2): 87–100.
- Zellner, A.* (1962). An Efficient Method of Estimating Seemingly Unrelated Regressions and Tests for Aggregation Bias. *Journal of the American Statistical Association*, 57(298): 348–368.