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Occupational Segregation between Sexes in Taiwan

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This paper examines the occupational segregation between sexes in Taiwan by using cross-sectional labor survey data. In order to avoid the effects of discountinuous labor market participation of women on access to occupations, the author selects only the labor force at the entry level in labor market for analysis. Adjusted segregation indices and a discrimination coefficient are applied here to measure the occupational segregation and potential occupational discrimination between sexes in a framework of a segmented labor market model. The empirical findings do not reject the hypothesis that significant occupational segregation exists in Taiwan's labor market.

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1. The Failure of the Labor Market Clearing Function and Occupational Segregation between the Sexes

Dual market theory was initially developed in the 1960s to analyze the problems of urban poverty, racial discrimination and the persistence of

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income quality within a society. Many of the models that are based on dual market theory have important implications for analysis of sex discrimination, that is, in terms of wage differentials and occupational segregation. According to an earlier version of segmented labor market theory, the labor market can be usefully be described as consisting of two sectors: a primary sector characterized by high wages, good working conditions, stable employment, and substantial returns to human capital such as education and experience, and a secondary sector with just the opposite characteristics. Not all workers can qualify for primary sector jobs because they are rationed by employers. Moreover, an individual's tastes, behavior patterns and even cognitive abilities can influence which of the two sectors of the labor market that they participate in. Indeed, dual labor market theory provides a framework that can describe income distribution and occupational segregation for studying the failure of the labor market clearing function.

Even though in his broadened analysis of dual labor market theory, Michael Piore (1975) did not categorize occupations into different tiers or major categories for women within the private sector, there are distinctions among jobs in the primary sector which are important and based on the sex of the employee. Within a firm, job assignments and job-promotion paths may be very different for men and women with similar credentials. Technological progress has not only led to increase the specific-skill requirements of the employees, but it also has given monopoly power to employers over the employees' career development. Since training costs are, for the most part, borne by the employer, each employee's adaptability and ability to learn and utilize what is taught in the training sessions are evaluated by the employer using subjective and/or objective criteria. The employer then distributes jobs according to the amount of experience and training of employees in order to secure his returns on his training investments. Besides the employers' subjective tastes which tend to

discriminate against women in hiring, discriminatory promotion and salary decisions and that which is based on probabilistic statistics, that is, the belief that women are inferior to men, are often referred to broadly as the practice of sex discrimination.

Restrictive practices which exclude women from consideration for high-wage or professional jobs are often based on the probabilistic belief that women are inferior to men on average and thus less suitable to hold these kinds of jobs. This practice decreases the chances of women finding and holding jobs in the primary sector and also prevents women from moving up the professional ladder within the firm through job promotions. As a result, women are forced into the already crowded and very competitive secondary market. Furthermore, occupational segregation between the sexes can persist over a long period of time if the labor market divides the labor market into two separate sectors based on sex. Even in the United States during the period, 1960-1970, little change was seen in the occupational distributions among men and women if housework is included as an occupation.

Segmented labor market theory was the prevailing theory taken by labor economists in the late 1960s and early 1970s to explaining the functioning of the labor market, but then it was challenged by critics because of its theoretical assumptions and questionable statistical analysis (Glenn Cain, 1976; Michael Wachter, 1974). Afterwards, neoclassical economists asserted that the key elements of the segmented labor model could be incorported into neoclassical analysis and that the remaining elements of the segmented labor model did not sufficiently form a coherent theory that could stand up against the neoclassical model. Except for some notable works by Michael Piore (1975), Peter Doeringer and Michael Piore (1971), and David Gordon (1972), most related empirical studies on segmented labor markets were historical or institutional analyses or observational studies up until just

recently.

However, there have been some recent developments in this area and the neoclassical theory of the labor market has come under criticism, particularly there assumption of wage efficiency in the labor maket. The central prediction of the wage efficiency assumption is that, given an efficient price mechanism in the market, workers of identical characteristics (regardless of sex) will receive the same wages. Recent empirical studies centered on interindustry wage differentials (Alan Krueger and Lawrence Summers, 1986a, b; William Dickens and Lawrence Katz 1987a, b), have shown that workers of identical characteristics receive different wages when variables such as union status and job status are taken into consideration. This finding casts strong doubt on the efficiency of the labor market clearing function, and implies that mobility barriers exist across industries and occupations in the labor market. For example, why were inter-industry wage differentials highly correlated for nearly a century if the market clearing function was actually working, and why were wage differentials highly correlated across occupations?

Segmented labor market theory provides a much more plausible explanation for these wage differentials and the failure of the labor market clearing function since it excludes free mobility of workers and excludes the workers from having free choice in job selection — as far as which sector that they would like to work in given a segmented labor market. Study has continued in this area and economists are including imperfect information theory and using state of the art econometrics in their analyses now. Furthermore, recent empirical studies have shown that the dual labor market model statistically is more relevant than the single labor market model in explaining the economic activities of the labor market, particularly wage distribution. As a result these new models and approaches are attracting a lot of attention from the mainstream neoclassical school and others as well.

Since the reemergence of segmented labor market studies — or at least the new forms of the old analysis — the new studies have focused on wage distribution alone and, however, few state-of-the-art empirical studies have paid sufficient attention to how a worker selects an occupation using segmented labor market analysis. The prevailing method of economic analysis designed to test occupational-segregation hypotheses of sex or racial discrimination in the labor market is to evaluate occupational patterns through the construction of indices of the relative employment shares of various groups in certain occupations given the workers level of education. This paper intends to analyze patterns of occupational segregation by estimating a multiple-logit model for occupational distribution using sex, education, experience, and other explanatory variables. The advantages of this direct approach are that we do not have to make assumptions regarding pertinent reference points for our variables, such as those for education which would be required for each occupational category, and that the analysis can be based on individual or group observations rather than percentages or relative shares.

2. An Analytical Method for Occupational Segregation

Recent works in statistical analysis using models with qualitative dependent variables have considered the case of an arbitrary number of responses and their explanatory variables. Among these statistical techniques, a multiple-logit model provides a useful statistical tool for the analysis of occupation patterns of workers based on their personal labor-characteristics and related job variables. This paper examines the effects of five, essentially exogenous variables on occupational status: sex, education, age, firm size, and residential location. In the regression analysis, sex and firm size are zero-one dummies. The value of one is assigned to female workers and to workers in firms with thirty or more employees.

Education is measured by the highest grade or level completed by the worker, for example, a high school graduate takes on the value of twelve. Residential location of the workers is classified by degree of urbanization, that is, metropolitan area (population over one million), provincial city or others (town).

Using these explanatory variables, we analyze workers in the labor market by occupation using four occupational categories: professional, feminine, unemployed and others. These four categories correspond with the two-digit groupings found in the official Manpower Utilization Survey of Taiwan. The professional category includes professional, technical, administrative and managerial workers excluding nurses and the medical assistants working in labor rooms. The feminine occupations include nurses, medical assistants working in labor rooms, typists, book keepers, data processing personnel, those people involved in retail sales, houseworkers, clerical workers, beauticians, and the operation workers the garment and weaving industries.

Besides analyzing access to employment in the various occupations, the results obtained in this paper can be interpreted to give us a measure of occupational segregation and to some extent a measure of discrimination based on the workers sex. A non-zero coefficient for sex or its related variables would imply that the sex of a worker affects what jobs are open to him or her and, as a result, affect occupational distributions of men and women in the labor market. It is true that one's sex might affect one's preferences regarding particular occupations, but it is also true that one's preferences might be influenced by previous and current discriminatory practices which have become a part of the social norm. If the latter is the case then women may be lead to choose a certain type of education or certain types of occupations, i.e., feminine occupations, without ever feeling that they are being discriminated against. However, if the former is true

then the results presented in this paper may not totally be interpreted as direct measures of sex discrimination in the labor market.

In short, this study analyzes 3070 entry level workers in Taiwan. Cross-sectional data were used to avoid the problems associated with discontinuity of female participation in the labor market. The data were taken from the 1984 Manpower Utilization Survey of Taiwan. Furthermore, "entry level workers" here refers to those workers who are first-time participants in the labor market either employed or unemployed. The statistics on our sample group are shown in Table 1.

The multiple logit model used in this paper is designed as follows:

$$\begin{aligned}\ln(p_1/p_3) = {} & b_{11}+b_{12}*\text{Sex} + b_{13}*\text{Education} + b_{14}*\text{Age} + b_{15}*\text{Metro} \\ & + b_{16}*\text{Town} + b_{17}*\text{Firm-Size} + b_{18}*(\text{Sex}*\text{Education}) \\ & + b_{19}*(\text{Sex}*\text{Age}) + b_{110}(\text{Sex}*\text{Metro}) + b_{111}*(\text{Sex}*\text{Town}) \\ & + b_{112}*(\text{Sex}*\text{Firm-Size}) + \text{errors}\end{aligned}$$

$$\begin{aligned}\ln(p_2/p_3) = {} & b_{21} + b_{22}*\text{Sex} + b_{23}*\text{Education} + b_{24}*\text{Age} + b_{25}*\text{Metro} \\ & + b_{26}*\text{Town} + b_{27}*\text{Firm-Size} + b_{28}*(\text{Sex}*\text{Education}) \\ & + b_{29}*(\text{Sex}*\text{Age}) + b_{210}*(\text{Sex}*\text{Metro}) + b_{211}*(\text{Sex}*\text{Town}) \\ & + b_{212}*(\text{Sex}*\text{Firm-Size}) + \text{errors}\end{aligned}$$

$$\begin{aligned}\ln(p_4/p_3) = {} & b_{41} + b_{42}*\text{Sex} + b_{43}*\text{Education} + b_{44}*\text{Age} + b_{45}*\text{Metro} \\ & + b_{46}*\text{Town} + b_{47}*\text{Firm-Size} + b_{48}*(\text{Sex}*\text{Education}) \\ & + b_{49}*(\text{Sex}*\text{Age}) + b_{410}*(\text{Sex}*\text{Metro}) + b_{411}*(\text{Sex}*\text{Town}) \\ & + b_{412}*(\text{Sex}*\text{Firm-Size}) + \text{errors}\end{aligned}$$

Pi represents the probability to access occupation i, $i=1$, 2, 3, and 4 where 1 = professional, 2 = feminine, 4 = unemployed, 3 = the others. Other dependent equations can also be derived from these equations. For example, since

$\ln (p_1/p_2) = \ln (p_1/p_3) - \ln (p_2/p_3)$,

the following equation must be true:

$$\begin{aligned}\ln (p_1/p_2) = {} & (b_{11}-b_{21})+(b_{12}-b_{22})*\text{Sex}+(b_{13}-b_{23})*\text{ Education}+(b_{14}-b_{24})*\text{Age} \\ & + (b_{15}-b_{25})*\text{Metro} + (b_{16}-b_{26})*\text{Town} + (b_{17}-b_{27})*\text{Firm-Size} \\ & + (b_{18}-b_{28})*(\text{Sex}*\text{Education}) + (b_{19}-b_{29})*(\text{Sex}*\text{Age}) \\ & + (b_{110}-b_{210})*(\text{Sex}*\text{Metro}) + (b_{111}-b_{211})*(\text{Sex}*\text{Town}) \\ & + (b_{112}-b_{212})*(\text{Sex}*\text{Firm-Size}) + \text{errors}\end{aligned}$$

Table 1 Statistics of the Labor Force at Entry Level

	Male	Female
Age	21.605	24.558
Education (School Years	10.983	9.643
Working Experience (years)	0.788	0.788
% Employed in a large Firm	34.6	44.9
% Metropolitan Residents	9.3	8.8
% Provincial City Residents	84.3	84.7

3. Empirical Results

After introducing the constraints on the various coefficients in each equation and running the regression analysis, we then come up with the coefficients for the variables and their respective statistics as shown in Table 2. All of the coefficients that relate to sex are not statistically significant, that is, different from zero at the 5% level. Therefore, we can not conclude, based on these results, that one's sex affects access to all occupations. Tables 3 to 6 show the probabilities of being in certain occupations based on sex (adjusted segregation index) which are the results of the multiple-logit regression analysis.

Table 2 Regression Results of Multiple Logit Model, Weighted OLS Estimation of Simultaneous-Equations

Dependent Variable = ln (p_1/p_3) — Professional versus Others

Explanatory Variables	Coefficient	Standard Error	t Ratio
Constant	−6.5196***	0.67653	−9.6368
Sex (Female = 1)	2.0557**	0.90920	2.2610
School Years	0.0854	0.06377	1.3399
Metropolitan	−0.0570	0.42022	−0.1358
Town	−1.6490***	0.33600	−4.9078
Age	0.14356***	0.01754	8.1870
Firm Size (Large firm=1)	4.4222***	0.90276	4,8985
Sex * School years	0.03946	0.06931	0.56939
Sex * Metropolitan	0.40357	0.59365	0.67982
Sex * Town	1.6241***	0.46212	3.5146
Sex * Age	−0.11564***	0.02041	−5.6665
Sex * Firm Size	−3.5053***	1.0729	−3.2671

Dependent Variable = ln (p_2/p_3) — Feminine versus Others

Explanatory Variables	Coefficient	Standard Error	t Ratio
Constant	−5.1713***	0.67653	−7.6438
Sex (Female = 1)	3.4803***	0.90920	3.8279
Education	0.18662***	0.06377	2.9266
Metropolitan	0.29810	0.42022	0.7094
Town	−0.13782	0.33600	−0.41019
Age	0.06325***	0.01754	3.6070
Firm Size (Large firm=1)	1.1050	0.90276	1.2241
Sex * School Years	−0.03305	0.06931	−0.47678
Sex * Metropolitan	0.17516	0.59365	0.29506
Sex * Town	0.36700	0.46212	0.79417
Sex * Age	−0.06732***	0.02041	−3.2988
Sex * Firm Size	−1.1631	1.0729	−1.0841

(Continued)

Table 2 (Continuted)

Dependent Variable = ln (p_1/p_2) — Professional versus Feminine

Explanatory Variables	Coefficient	Standard Error	t Ratio
Constant	−1.3483***	0.46768	2.94594
Sex (Female = 1)	−1.4246*	0.82666	−1.72332
School Years	−0.10122***	0.0040658	−24.89547
Metropolitan	−0.3551***	0.176578	−2.01101
Town	−1.51118***	0.112902	−13.38488
Age	0.08031***	0.00030748	261.18772
Firm Size (Large firm=1)	3.3172***	0.81496	4.07038
Sex * School years	0.07251***	0.0048036	15.09493
Sex * Metropolitan	0.22841	0.35242	0.64812
Sex * Town	1.2571***	0.21355	5.88668
Sex * Age	−0.04832***	0.00041650	−116.01441
Sex * Firm Size	−2.3422**	1.1511	−2.03475

Dependent Variable = ln (p_4/p_3) — Unemployed versus Others

Explanatory Variables	Coefficient	Standard Error	t Ratio
Constant	−5.9667***	0.67653	−8.8196
Sex (Female = 1)	0.86057	0.90920	0.94651
School years	0.15606**	0.06377	2.4475
Metropolitan	0.035886	0.42022	0.085398
Town	−0.58939*	0.336(X)	−1.7541
Age	0.14855***	0.017535	8.4717
Firm Size (Large firm=1)	−1.4566	0.90276	−1.6135
Sex * School Years	0.060505	0.069307	0.87299
Sex * Metropolitan	−0.27247	0.59365	−0.45897
Sex * Town	0.17081	0.46212	0.36962
Sex * Age	−0.094481***	0.020408	−4.6295
Sex * Firm Size	0.84195	1.0729	0.78475

(Continued)

Table 2 (Continued)

Dependent Variable = ln (p_1/p_4) — Professional versus unemployed

Explanatory Variables	Coefficient	Standard Error	t Ratio
Constant	−0.5529	0.67653	−0.8173
Sex (Female = 1)	1.19513	0.90920	1.3145
School Years	−0.07066	0.06377	−1.1080
Metropolitan	−0.092886	0.42022	−0.2210
Town	−1.05961***	0.33600	−3.1536
Age	−0.00499	0.01754	−0.2845
Firm Size (Large firm=1)	5.87880***	0.90276	6.5120
Sex * School Year	−0.021045	0.06931	−0.3095
Sex * Metropolitan	0.67604	0.59365	1.1388
Sex * Town	1.45329***	0.46212	3.1448
Sex * Age	−0.021159	0.02041	−1.0367
Sex * Firm Size	−4.34725***	1.0729	−4.0519

Dependent Variable = ln (p_2/p_4) — feminine versus Unemployed

Explanatory Variables	Coefficient	Standard Error	t Ratio
Constant	0.79540	0.67653	1.1757
Sex (Female = 1)	2.61973***	0.90920	2.8814
School Years	0.03056	0.06377	0.4792
Metropolitan	0.262214	0.42022	0.6240
Town	0.45157	0.33600	1.3440
Age	−0.0853***	0.01754	−4.8632
Firm Size (Larger firm=1)	2.5616***	0.90276	2.8375
Sex * School Years	−0.093555	0.06931	1.3498
Sex * Metropolitan	0.44763	0.59365	0.7540
Sex * town	0.19619	0.46212	0.4245
Sex * Age	0.027161	0.02041	1.3308
Sex * Firm Size	−2.00505*	1.0729	1.8688

R^2 = 0.7202 X^2 = 309.4348

Number of Groups = 294 Log-likelihood Value = −1178.73

α The Weights are given by a group's share in the sampled data of the labor force; * Significant at 10%; ** Significant at 5%; and ** Significant at 1%.

Table 3 Probabilities of Being in Each Occupation, Given a Particular Age, Firm Size, and Residential Location*

Occupation	Years of Schooling 9		12		16	
	Male	Female	Male	Female	Male	Female
Professional	0.2366	0.0520	0.2533	0.0587	0.2571	0.0630
Feminine	0.1124	0.3651	0.1630	0.4491	0.2480	0.5410
Others	0.5616	0.5266	0.4653	0.4086	0.3356	0.2663
Unemployed	0.0894	0.0563	0.1183	0.0837	0.1593	0.1297
Segregation Index	0.2527		0.2860		0.2930	

*Age = 22.5; Firm Size = 0.40; Metro = 0.09; and Town = 0.065

The values in the adjusted segregation index used in this study are the result of taking the absolute value of the difference between the probability of men and women being employed in certain occupations, summing these differences across occupations and dividing by two. The values would equal zero if both men and women of identical personal characteristics and equivalent occupations have the same distributions across occupations. If this were the case then there would be no occupational segregation of the labor market based on sex. At the other extreme, if men and women were totally segregated by occupation, that is, there are two totally separate labor markets, one for men and one for women, then the value of the index would be one. Our findings in Table 3 indicate an increasing occupational segregation between sexes as the attainment of education increases.

The probability of being in each of the occupational categories, for workers with similar characteristics, is calculated using a multiple logit model. The results, as shown in Table 3, imply that there is a greater probability for a man to be in a professional occupation than a women given the same level of education and other personal characteristics. Moreover, for a greater level of education, there exists greater disparity in the occupational segregation between the sexes with other things being equal. This can be many attributable to two factors. First, the probability of holding an entry-level job in the feminine occupational category increases when labor market entrants have received higher education, but it increases more for females. In the "other" occupational category, the probability decreases for a higher level of education, but it decreases more for females. Secondly, as educational levels increases, the probability differentials relating to whether men or women hold a job in the professional occupational category increase, that is, women are less likely to hold professional category jobs. Table 3 also indicates that about one out of every two new female college graduates enter feminine occupations whereas for male graduates the ratio is one out of every four.

Table 4 indicates that large firms in Taiwan have a higher degree of occupational segregation, as far as professional jobs are concerned, in Taiwan among the sexes, that is, larger firms tend to hire more men for professional jobs despite the fact that women in large firms have a higher probability of being a professional than those women who are employed in smaller firms — which would by the nature of their smallness provide less professional positions for their employees. This finding cannot reject the hypothesis that, in Taiwan, women are more likely to be hired in the secondary market, based on segmented market theory. A large firm may in fact be large enough to constitute a labor market in itself which consists of primary and secondary sectors. In this instance, the firm can exercise monopoly power in its labor sectors when determining job assignments.

Table 4 Probabilities of Being in Each Occupation, Given a Particular Education, Age, and Residential Location*

Occupation	Larger Firm		Small Firm	
	Male	Female	Male	Female
Professional	0.8083	0.0938	0.0500	0.0375
Feminine	0.0581	0.3778	0.0990	0.3988
Others	0.1240	0.4839	0.6383	0.4820
Unemployed	0.0096	0.0445	0.2127	0.0819
Segregation Index	0.7145		0.2997	

*Education = 10; Age = 22.5; Metro = 0.09; and Town = 0.065

According to Table 5, residing in large metropolitan areas such as Taipei is not anymore advantageous to females than residing in a small city as far as occupational distributions among men and women are concerned. This implies that urbanization does not eliminate the problem of a segregated labor market but, on the contrary, gives greater chances for men to be employed in professional occpations. As for women, their main types of employment still lie in the feminine category.

Table 6 indicates that as a person's age increase, the probability that he or she would be employed in a professional occupation increases for men while decreasing for women. This is implies that men have a greater tendency than women for upward mobility into the professional category as their age increases than women do.

In almost all cases, women have significantly lower probabilities for

Table 5 Probabilities of Being in Each Occupation, Given a Particular Age, Firm Size, and Education*

Occupation	Residential Location					
	Metropolitan		Provincial City		Town	
	Male	Female	Male	Female	Male	Female
Professional	0.2420	0.0617	0.2642	0.0540	0.0699	0.0491
Female	0.1593	0.4923	0.1219	0.3795	0.1462	0.4449
Others	0.4990	0.4018	0.5146	0.4972	0.7082	0.4635
Unemployed	0.0996	0.0442	0.0992	0.0693	0.0757	0.0425
Segregation Index	0.3330		0.2576		0.2987	

*Education = 10; Age = 22.5; and Firm Size = 0.40.

Table 6 Probabilities of Being in Each Occupation, Given a Particular Age, Firm Size, and Residential Location*

Occupation	Age					
	16		20		25	
	Male	Female	Male	Female	Male	Female
Professional	0.1279	0.0462	0.1937	0.0512	0.2973	0.0578
Female	0.1133	0.4116	0.1244	0.4009	0.1279	0.3862
Others	0.7086	0.4958	0.6043	0.4909	0.4526	0.4826
Unemployed	0.0502	0.0463	0.0776	0.0570	0.1221	0.0734
Segregation Index	0.2984		0.2765		0.2883	

*Education = 10; Firm Size = 0.40; Metro = 0.09; and Town = 0.065

being unemployed. These results may lead to an incorrect conclusion that women have more opportunities available to them even if they are limited to the secondary sector of the labor market. The fact is that women stand a better chance of being discouraged whereby withdrawing totally from the labor market or constantly withdrawing to the position of the labor market and applying for reentry without explicitly having a period of unemployment.

In our analysis, a standardized coefficient, D_i, is used to measure wage discrimination and is applied here to measure the difference in occupational distributions among men and women taking into consideration their personal characteristics and job environments (see, for example, Ronald Oaxaca, 1973).

$$\text{or} \qquad D_i = [(P_{mi} / P_{fi}) - (P_{mi} / P_{fi}^{m})] / (P_{mi} / P_{fi}^{m}) = (P_{fi}^{m} / P_{fi}) - 1$$

$$\ln (D_i + 1)^{mi} = \ln P_{fi}^{m} - \ln P_{fi}$$

where P_{ki} represents the probability that female workers would be in occupation i and P_{fi}^{m} postulates the probability that females would be in occupation i given no sex discrimination or differences in occupational preferences between men and women. In other words, P_{fi}^{m} is the probability that women would be in occupation i given that they were indistinguishable from men. Each P_{fi}^{m} can be obtained by taking the average characteristics of women, assigning zero to the men's regression equations listed in Table 2 for the variable of sex. All P_{ki} and P_{fi}^{m} are shown in Table 7.

According to the characteristics of D_i, shown above, the value of D_i is mainly attributable to the differences in the regression parameters for men and women when D_i is taken to be very small. If there is no discrimination present in the labor market or in the occupational

Table 7 Probabilities of being in Each Occupation, Given Average of Male and Female Characteristics

Occupation	Male	Female	
	P_{mi}	P_{fi}	P_{fi}^{m}
(1) Professional	0.0658	0.0548	0.1282
(2) Feminine	0.1593	0.4272	0.1531
(3) Others	0.6857	0.4726	0.6304
(4) Unemployed	0.0892	0.0454	0.0884

Aggregate Segregation Index = 0.2679*

Aggregate Segregation Index = 0.2792** (After Adjustment)

* Aggregate Segregation Index = $(\Sigma \mid P_{mi} - P_{fi} \mid) / 2$

**Adjusted Aggregate Segregation Index = $(\Sigma \mid P_{fi}^{m} - P_{fi} \mid)/2$, where $P_{fi}^{m} - P_{fi}$

$= (P_{mi} - P_{fi}) - (P_{mi} - P_{fi}^{m})$

preferences among the sexes, D_i would equal zero, though men and women may still have different personal characteristics. A positive value for D_i indicates that women are discriminated against in employment in occupation i and a negative value indicates a bias in favor of employing women in occupation i. This does not apply for the cateogory unemployment for the reasons mentioned earlier.

The estimated coefficients of D_i for each of the four occupational categories are listed below.

$D_1 = 133.94\%$ $D_3 = 33.39\%$

$D_2 = -64.16\%$ $D_4 = 94.71\%$

The number representing the aggregate segregation index among men and women for Taiwan is 0.2679. However, after adjusting for the work characteristics of women, the aggregate index increased about 5% to 0.2792. This increase can not be explained by neoclassical occupation selection models.

It is impossible to make international comparisons through the use of the aggregate segregation index since the classification of occupations by groups across countries is difficult. Therefore, we only focus on cross-sectional comparisons. In rank order from highest to lowest, women are most likely to be employed in occupations in the following categories:

1) Feminine
2) Others
3) Professional

Obviously, the high value of D_1 for professional occupations implies that there is a entry barrier prohibiting women to be employed in the professional occupational category. In general, the results of the discrimination-coefficient analysis here are consistent with the segregation hypothesis that there exists discrimination against women in this segmented labor market can not be rejected.

4. Concluding Remarks

The existence of differing preferences among men and women is usually taken as the justification for the segregation of men and women by occupations in the labor market. However, in a scientific debate, it is not usually wise to relate cause and effect of real-life happenings to totally subjective arguments. Therefore, for those social scientists who do not

regard that the unexplained part of occupational segregation among men and women is that which can be explained by sex discrimination, the construction of a sequential-decision model incorporating human capital investments and occupational selections, in a family context, is needed to support their contention that women are not forced to choose certain occupations.

In this study, differentials in occupational distributions between the sexes at the entry level in Taiwan are statistically significant. The probability of being in an occupation in the professional category for women is half of that for men given the same personal characteristics. Also, the size of the firm is strongly and positively related to occupational segregation among the sexes in Taiwan. Furthermore, higher educational attainment by women does not remove segregational barriers to high-wage occupations and, surprisingly enough, the greater the degree of urbanization of the places where women reside tends to increase the barriers that support occupational segregation based on sex. In brief, the hypothesis that sexual discrimination against women exists in the labor market in Taiwan can not be rejected have according to our empirical findings.

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台灣的職業性別隔離

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摘要

本文利用橫剖面的資料檢驗台灣勞動市場內男女在職業之間的隔離狀況。爲了避免婦女勞動參與中斷的影響，作者選擇了初入市場的 3070 名勞動力作分析對象。作者利用多項邏輯方式(multiple-logit equation)且以加權的最小平方法來估計男女進入不同職業的機率，進而計算性別隔離的指標。實證結果不能推翻性別對職業分配無影響的假設。通常女性進入較好職業的機會（如專業人員）具有較高的進入障礙，在傳統女性職業方面女性則較男性具有更有利的進入機會。同時在台灣教育並不如許多人所預期地能有效改善職業隔離的現象。若利用職業間性別隔離指標計算台灣性別隔離的結果則顯示性別隔離情況並非很嚴重。