WAGE DIFFERENTIAL STRUCTURE IN GENDER AND NATIONALITY: A CASE OF THE CHOSEN INDUSTRIAL BANK UNDER JAPANESE RULE, 1920-1944

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Abstract

This study investigates wage differentials and discrimination in a leading policy bank in Korea during Japanese rule, using the Blinder-Oaxaca decomposition method. The empirical results show that the degree of discrimination attenuated toward the end of colonial rule. Wage discrimination based on gender is first explored in our study and observed throughout the colonial period. Finally, based on quantile decompositions, we conclude that discrimination at the top part of the wage distribution (dominated by male workers) was reduced and discrimination at the bottom part of the wage distribution (where most women were employed) persisted during the colonial period.

Keywords: wage discrimination, nationality, gender, Blinder-Oaxaca decomposition, quantile regression
JEL Classification Codes: N25, C2, J31

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I. *Introduction*

Korea was a Japanese colony from August 1910 to August 1945. It has been approximately 80 years since Korea was liberated from Japanese occupation, and debates on the characteristics of Japanese colonial rule continue. On the one hand, it has been proposed that indigenous capitalist development by the Korean people was frustrated by Japanese colonial occupation, and Korea was ruthlessly exploited for Japan's interests (exploitation theory). On the other hand, it has been argued that although Korea fell victim to Japanese occupation, it achieved economic growth and transitioned to modern capitalist development through colonial rule (development theory). We attempt to analyze this problem in the microsphere. Under Japanese colonial rule, modern business corporations appeared and Koreans worked with Japanese people in these organizations. We investigate whether there were wage differentials between Korean and Japanese employees, and, if any, whether there was discrimination against Korean employees. The presence of discrimination in wage structures suggests exploitation at the micro level.

In addition, we attempt to trace the deep roots of discrimination by gender embedded in current Korean society. Gender discrimination embedded in the labor market is apparent worldwide.[1] We suggest that the origin of the current gender wage gap, including discrimination, can be traced to the early phase of capitalist development in Korea, which coincided with the Japanese colonial period.[2]

This study aims to investigate and reveal wage differentials and discrimination in a leading policy bank in Korea during Japanese rule using the well-established Blinder–Oaxaca decomposition method. For this purpose, we use valuable micro-level individual data recorded and accumulated in the bank. Using the data and method described in the main part of this paper, we find the following characteristics concerning banks' wage structures:

First, we attempt to decompose wage differentials by gender, which has not been analyzed in previous studies of wage differentials in Korea during the Japanese colonial period. Most previous studies have focused on estimating real wages to investigate wage differentials according to nationality. These studies did not reveal meaningful insights into wage discrimination, although they presented macro wage differentials according to nationality. Furthermore, no study has attempted to analyze wage differentials and discrimination, possibly owing to data limitations.

Second, we provide a more accurate picture of wage discrimination through a comprehensive study. Two contrasting results have been reported in previous studies. On the one hand, it is argued that wage discrimination based on nationality gradually decreased toward the end of Japanese colonial rule. On the other hand, wage discrimination attributable to nationality was maintained until the end of the colonial period. Therefore, we provide new insights into this contrast. In other words, we show that, although wage discrimination based on

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[1] See Blau and Kahn (2017) for overall review of gender wage gap, including discrimination, in the US labor market. Readers are also referred to Goldin and Rouse (2000) for the analysis of discrimination against females in the hiring process in the musicians' market.

[2] Sun (2018) showed that there was a gender wage gap in Japan Nitrogen Fertilizer in 1943 in Korea. However, this work did not attempt to investigate the presence of discrimination.

nationality among male workers was clearly attenuated, wage discrimination based on nationality among female workers increased during the final phase of the colonial period. This study is the first to demonstrate that wage discrimination is concentrated among Korean female workers.

Third, the decomposition method is applied to an entire distribution for the first time. Traditionally, the decomposition method has been concerned with conditional mean wages. Recently, a decomposition method based on quantile regression has been proposed; however, few studies have applied this method in the context of wage differentials. We contribute to this line of research by adopting a decomposition method for the distribution of both nationality and gender. In particular, we find that the magnitude of wage discrimination based on gender increases monotonically along the main quantiles of wage discrimination.

Finally, we extend the time horizon of the analysis to obtain a more comprehensive picture of the discrimination patterns. Previously, researchers arbitrarily selected time points to analyze wage differentials using the same data. For example, the most recent study selected a yearly point in the 1940s. We fully utilize all data from 1920 to 1944 to extract time-series changes.

The remainder of this paper is organized as follows. Section II discusses previous studies. Here, we highlight the academic contributions of our work in the research history about Korean economic history under Japanese rule. Section III provides information on the Chosen Industrial Bank (CIB), which is a policy bank. Section IV discusses the data characteristics in detail and provides descriptive statistics. Section V presents the empirical model, and Section VI presents the empirical results. Finally, Section VII discusses the contributions of this study and future research directions.

II.   *Literature Review*

Studies on wage differentials in Korea during the Japanese colonial period were initiated and advanced by Heo (1981). He estimated real wages using the consumer price index and nominal wages that he systematically collected and rearranged. Based on the estimated real wages, he showed that real wages in the 1920s-1930s exceeded those in the 1910s for skilled laborers, whereas the trend was reversed for unskilled laborers who were mostly Koreans. In contrast, Lee and Cha (2007) found that real wages for unskilled Korean laborers showed an upward trend. Furthermore, Kim and Park (2010) showed that wage differentials according to nationality, gender, and skills narrowed overall, in addition to an increase in the real wages of unskilled labor.

The aforementioned studies have contributed to understanding the reality of wage differentials in the Korean labor market during the Japanese colonial period. However, they were unable to determine why wage differentials persisted after controlling for education, occupation, and labor market experience. More importantly, previous studies have serious limitations in that they did not attempt to explicitly decompose wage differentials into differentials caused by productivity and discrimination.

In addition, the debate over wage differentials between skilled and unskilled workers caused a fundamental controversy regarding exploitation and development with regard to the essence of colonial rule. The main arguments of both camps are well documented by Heo (2016) and Kim (2006). According to Heo (2016), first, Korea was developed by Japanese

capital under Japanese colonial rule, but the gains were not distributed to the Korean people. Second, it is true that the Korean economy grew under Japanese rule, but the magnitude was not significant compared to the growth after national liberation. Kim (2006) analyzed production, distribution, consumption, capital, finance, international trade, and balance of payments by estimating the national account. Based on an analysis of the long-term trends in economic growth and income distribution, it is emphasized that extreme inequality in income distribution between nationalities did not progress. However, neither camp reached a consensus on the concrete structure of income distribution and the wage differential between nationalities, despite the long debate. This paper ambitiously aims to end this long controversy by analyzing rich micro wage data.

Moskowitz (1979) pioneered a study on wage differentials in the CIB, which is the focus of our analysis. To date, Moskowitz (1979) has been misunderstood as emphasizing a reduction in wage differentials according to nationality. Although he presented a narrow wage gap between Japanese and Korean employees in the CIB, he also showed that the wage differential structure according to nationality was maintained until the day of national liberation. Jung (2003, 2007) discovered the CIB's Records of Employees' Retirement and Death, which is the dataset used in this study. Using this data, he presented evidence of CIB's assimilation and discrimination policies faced by Korean CIB employees as a new class in the colonial ruling system. Sun (2010) analyzed the CIB's human resource management systems and presented them as the first example of white-collar internal labor market formation in modern Korea.

Furthermore, he verified that the CIB human resource management systems established during the colonial period were maintained and operated even in the postcolonial era in Korea. Relating the CIB's Records of Employees' Retirement and Death to post-colonial wage surveys, Cha et al. (2014) estimated the long-term trends of wage differentials in the Korean financial industry according to educational achievements, assuming that the CIB's wage structures determined in the internal labor market were more rigid than those determined in the external labor market. They concluded that the wage premiums of highly educated employees reduced substantially.

Kim (1998) performed wage decomposition in civil engineering and construction during the Japanese colonial period using small cross-sectional data. Using Oaxaca's (1973) and Cotton's (1988) models, he decomposed the wages of construction workers in 1928 according to nationality and presented an unexplained portion (37.4%) as evidence of discrimination based on nationality. Most recently, Sun et al. (2020) decomposed wage gaps in the 1940s—the final phase in the Japanese colonial period—using CIB's Records of Employees' Retirement and Death; furthermore, they presented the unexplained portion (71.4%) as evidence of discrimination based on nationality.

As explained thus far, the analysis of macro wage data was divided into exploitation theory (expansion of the wage gap by nationality) and development theory (reduction of the wage gap by nationality), but neither was successful in determining the reason. Moreover, previous studies using CIB data either focused on a particular period in conducting wage decomposition or used it as supplementary data in long-term time series analysis. Using CIB data, this study attempts to resolve the contradiction between the exploitation and development theories on wage differentials by nationality. For this purpose, we perform both traditional mean decomposition and quantile decomposition. In addition, we conduct a wage decomposition according to gender.

III.   *Overview of the CIB*

In 1918, the CIB was established to develop capitalist industries in Korea, a Japanese colony at the time, by providing policy funds to selected firms. It was established by incorporating six previously established agricultural and industrial banks: Hanho, Pyungan, Kyungsang, Jeonju, Gwangju, and Hamgyung (Jung, 2004, pp.56-78). Headquartered in Kyungsung (now Seoul), the CIB had branches nationwide and dominated other commercial banks in terms of deposits and loans. At that time, the CIB was the most attractive and popular workplace available to the highly educated Korean workforce. Furthermore, Korean job candidates were typically commercial college graduates with the highest academic performance and recommendation letters from the school. Japanese employees were more likely than Korean employees to quit the bank in search of a better job, resulting in higher turnover rates. For the first three years since its establishment, the CIB rapidly expanded its number of employees to prepare for expected business expansions. The number of employees then stalled or even decreased in the early 1920s and increased continually in the late 1920s. Subsequently, it decreased in 1932 and sharply increased thereafter. In the post-colonial era, the number of employees in 1937 was six times that in 1954. Most CIB employees were bank clerks with secondary education or higher. The Korea Development Bank (KDB) succeeded the CIB after national liberation.

IV.   *Data*

1.   Records of Employees' Retirement and Death

Our empirical analysis is based on Records of Employees' Retirement and Death (hereafter, referred to as "Records") and personnel data from the CIB. Jung (2003) discovered the original materials in KDB storage, and later Jae Won Sun and Hyun Park, with research assistants, arranged and digitalized the data. The original material is now available at the National Institute of Korean History. To date, "Records" is the only microdata available to the researchers that contains individual-level information on wages, promotions, retirement, and other individual characteristics recorded in the colonial period. Such micro-level data have not been found in the Government-General of Chosen or in any public or private firm that existed in the colonial period. Even in Japan, for the period before the Second World War, there are no data that provide individual-level information on wages and promotions augmented with time-series aspects. Therefore, the data we used could provide more valuable insights into the wage structure during the Japanese colonial period than the results presented by Moskowitz (1979), who used secondary materials such as journals published by the CIB. Furthermore, this study contributes to the literature on wage differentials in Japan before World War II by providing some insights.

The records logged various individual characteristics of bank employees who had either retired or died while employed. These include gender, date of birth, highest education level, school name of highest education, year of graduation, nationality, monthly wage, type of work, entry date, exit date, labor mark experience, retirement allowance, and condolence payments.

Using this information, we constructed the variables used in the empirical analysis, such as gender, nationality, age, years of schooling, school location of highest education, length of tenure, market experience, work type, and wages. Records from 1925, 1928, 1933, 1937, and 1941-1944 were merged; they contained 1,326 individuals from 1918 to 1944. After cleaning the data for missing values and excluding 1918 and 1919, we obtained 7,141 observations for 1,216 individuals.[3] Therefore, the data is essentially unbalanced panel data.

2. Descriptive Statistics

Table 1 presents the descriptive statistics of the variables according to gender and nationality. We focus mainly on the differentials in wage structures according to nationality and gender. The first and second stars in the superscript of the variable names denote the statistical significance of the differences between the two nationality groups and between the two gender groups, respectively, based on a *t*-test (*** indicates statistical significance at the 1% level and "*ins*" means statistical insignificance). First, Korean employees were paid less than Japanese employees on average throughout the sample period. However, the gaps were found to have narrowed gradually. Regarding age, Korean and female employees were younger than their Japanese and male counterparts. No statistical difference in educational achievement was observed between genders. However, there was a clear difference in the length of education between the nationality groups. In other words, the Japanese employees were more educated than the Korean employees, as measured by their years of schooling.

Furthermore, to consider the quality of education, we constructed a variable that denotes the location of the highest educational institution attended. In addition to the length of education, it is very likely that the rate of return to education also differed depending on whether an employee graduated from the highest educational institution attended in Japan.[4] There were sufficient variations in the quality of education captured by school location across nationalities and genders, as can be seen in the *eduq* variable. Regarding the highest educational institution attended, about 10% of Korean employees graduated from schools in Japan, while almost 51% of Japanese employees graduated from schools in Japan. In addition, 21.3% of female workers graduated from Japanese schools, whereas 34.7% of male workers graduated from Japanese schools. Korean employees seemed to have stayed longer in the CIB than Japanese employees, although the difference was not statistically significant. Female employees stayed in the CIB for a shorter duration than their male counterparts. There were clear differences in labor market experiences between nationality and gender groups. Japanese and male employees had more experience elsewhere before entering the CIB. There may have been differences in the allocation of employees to different job classes. Broadly speaking, there were

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[3] In the final analysis, there were 36 observations for five employees educated in Manchukuo or the US.

[4] If the same level of education provides a different level of human capital value added, the difference in the quality of education would result in the different coefficients of education by nationality in the wage equation, affecting the measured wage discrimination. By introducing the quality of education variable, we explicitly take account of this plausible problem. This issue may also apply to gender wage discrimination. In both Korea and Japan, there were segregations between male and female students, meaning there were different schools designated for males and females. The curriculums in these schools were considered to be different. For gender, we presume that the quality of education variable could capture this problem with the job type variable. We deeply appreciate the valuable comments about this problem provided by the referee.

three job classes in the CIB: bank clerks; high-tech employees, such as engineers; and low-tech employees, such as telephone operators. Among the Korean employees, 7% and 18% were high-tech and low-tech employees, respectively; for the Japanese employees, the figures were 11.6% and 23.5%, respectively. Remarkably, none of the female employees held high-tech jobs. Instead, 61.7% of the female workers held low-tech jobs. Among male employees, 11.1% and 14.7% held high-tech and low-tech jobs, respectively.

TABLE 1. DESCRIPTIVE STATISTICS

	Nationality		Gender		Note
	Korean	Japanese	Female	Male	
lwage[***,***] (n=7,141)	3.894 (0.504)	4.148 (0.599)	3.523 (0.151)	4.116 (0.574)	log monthly wage
lwage1[***,***] (n=1,849)	3.637 (0.498)	4.173 (0.529)	3.481 (0.106)	4.007 (0.014)	1920-1929
lwage2[***,***] (n=2,266)	4.014 (0.521)	4.296 (0.651)	3.406 (0.209)	4.232 (0.603)	1930-1939
lwage3[***,***] (n=3,026)	3.930 (0.460)	3.984 (0.561)	3.548 (0.132)	4.092 (0.517)	1940-1944
female[***]	0.056 (0.230)	0.199 (0.399)	-	-	gender dummy
Korean[***]	-	-	0.182 (0.386)	0.482 (0.500)	nationality dummy
age[***,***]	25.92 (7.629)	29.74 (10.37)	19.38 (3.328)	29.42 (9.377)	
edu[***, ins]	9.923 (3.016)	11.42 (2.816)	10.83 (0.896)	10.75 (3.207)	years of schooling
eduq[***,***]	0.093 (0.291)	0.505 (0.500)	0.213 (0.410)	0.347 (0.476)	location of school (reference: Korea)
tenure[ins,***]	5.660 (6.180)	5.649 (5.777)	1.526 (1.756)	6.303 (6.123)	
expe[***,***]	1.473 (3.442)	4.424 (7.169)	0.753 (2.525)	3.494 (6.302)	market experience
hightech[***,***]	0.071 (0.256)	0.116 (0.320)	-	0.111 (0.314)	skilled job (reference: bank clerks)
lowtech[***,***]	0.179 (0.384)	0.235 (0.424)	0.617 (0.486)	0.147 (0.354)	less skilled job (reference: bank clerks)

Finally, we observed that, on average, the proportion of Japanese female employees was higher than that of Korean female employees. Similarly, the proportion of Korean male employees was higher than that of Korean female employees. As seen in the descriptive statistics, the two nationality and gender groups were clearly heterogeneous in terms of observable individual characteristics. Thus, we controlled for these variables in the formal empirical analysis.

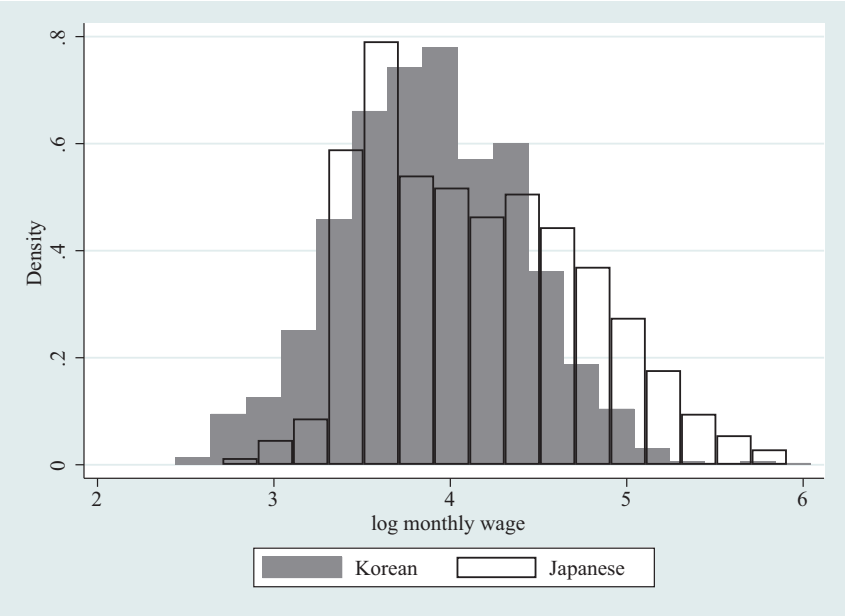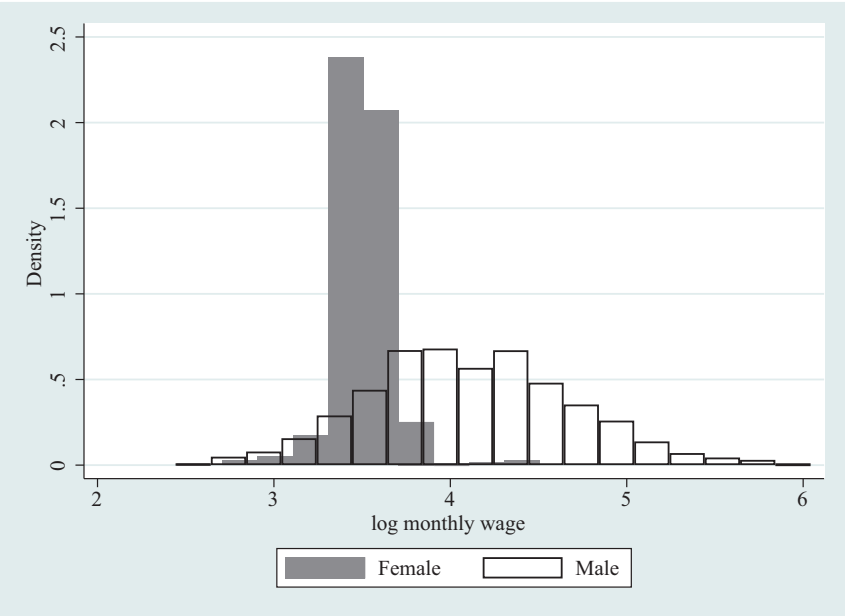FIGURE 1.   DISTRIBUTION OF LOG WAGE ACCORDING TO NATIONALITY

FIGURE 2.   DISTRIBUTION OF LOG WAGE ACCORDING TO GENDER

V. *Empirical Method*

In this study, we employ the Blinder-Oaxaca decomposition method (Blinder [1973] and Oaxaca [1973], hereafter referred to as B-O decomposition) to analyze wage discrimination between nationality and gender groups. Therefore, we estimate the following wage equation[5]:

$$\ln w_i = \beta_0 + \beta_1 age_i + \beta_2 tenure_i + \beta_3 expe_i + \beta_4 edu_i + \beta_5 edu_i{}^* eduq_i + \beta_6 hightech_i$$
$$+ \beta_7 lowtech_i + \beta_8 female_i + \beta_9 Korean_i + \varepsilon_i$$

Note that β_5 captures the return to the quality of education. Thus, if an employee graduated from the schools of highest education located in Japan, the total return to education is measured by $(\beta_4 + \beta_5)$. Otherwise, it is given by β_4. Based on the regression model, B-O decomposition decomposes the difference between the groups as follows:

$$\Delta = E(Y_J) - E(Y_K) = (\overline{X}_J - \overline{X}_K)\hat{\beta}_J + \overline{X}_K (\hat{\beta}_J - \hat{\beta}_K) \qquad (1)$$

where $E(Y_J)$ is the estimated mean wage for Japanese employees, $\overline{X}_J$ denotes a vector of the mean values of the explanatory variables that determine the log monthly wage of Japanese employees, and $\hat{\beta}_J$ is the estimated coefficient for the wage equation of Japanese employees (K is for Korean employees). In the last part of Equation (1), the first term is explained based on the differences in characteristics between Japanese and Korean employees, and the second term represents the unexplained part generated from the differences in the estimated coefficients of the explanatory variables. The latter is typically interpreted as a measure of discrimination.[6] We also implemented this decomposition for the gender groups. In this case, we replaced J and K with M and F, respectively.

Since the decomposition method of mean effects was proposed using B-O decomposition, several methods have been developed to extend decomposition methods to distributional parameters other than the mean. This study adopts the methodology proposed by Fortin et al. (2011), which builds on unconditional quantile regression.[7] As explained by Fortin et al. (2011), the cumulative distribution function (CDF) provides a one-to-one mapping between unconditional quantiles and the proportion of observations below this quantile. Performing decomposi-

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[5] Our equation is the first one that includes the quality of education and job class dummy variables. No previous research exploring a similar problem used this information contained in the data.

[6] There should be caution in interpreting the overall unexplained part as discrimination only. In fact, the unexplained part consists of two parts. One is the effects of other unobservable explanatory variables that may affect wages but not included in the regression. The other remaining part may be due to the discrimination. Under this circumstance, at most, we could interpret the overall unexplained part as *upper bounds* of discrimination. For example, the comparatively poor quality of Korean schools for Korean employees meant a low value of the estimated coefficient on the length of education for Korean employees than for Japanese employees. Therefore, some portion of this lower value of the coefficient reflected a difference in the quality of education captured by the school location for Korean employees that could have otherwise been interpreted as an effect of discrimination. This is analogous to the discussions regarding the roles of school quality and the narrowing of the black-white earnings gap in Card and Krueger (1992). In fact, the amount of unexplained part in our first manuscript has been reduced when we introduced the quality of the education variable.

[7] Readers are referred to Firpo et al. (2009) for detailed discussions on the theoretical background of the methodology and differences between conditional and unconditional quantile regressions.

tion on proportions is a standard problem. One can either run a linear probability model and perform a traditional B-O decomposition, or perform a nonlinear version of the decomposition using logit or probit. The decomposition of quantiles can then be obtained by inverting the back proportions into quantiles. Firpo et al. (2007) recommended using a first-order approximation, where the elements of the decomposition for a proportion are transformed into elements of the decomposition for the corresponding quantile by dividing by the density (slope of the CDF). Thus, let the coefficients of the unconditional quantile regressions for each group be:

$$\hat{\gamma}_{\tau,i} = \left(\sum X_i X_i'\right)^{-1} \sum \widehat{RIF}(Y_i, q_{\tau,i}) X_i, \ i = J, K$$

where RIF is the re-centered influence function. We can then write the equivalent of the B-O decomposition for any unconditional quantile as:

$$\Delta^{\tau} = (\overline{X}_J - \overline{X}_K)\hat{\gamma}_{\tau,J} + \overline{X}_K(\hat{\gamma}_{\tau,J} - \hat{\gamma}_{\tau,K}) \tag{2}$$

where the first element is the wage structure effect (explained effect), and the second component is the composition effect (unexplained effect). We also implemented this decomposition for the gender groups. In this case, we replaced J and K with M and F, respectively.

VI.   *Results*

1.   **Decompositions According to Nationality**

Tables 2 and 3 present the results of the main estimation.[8] First, we observed a statistically significant wage differential attributable to discrimination between Korean and Japanese employees during the entire sample period. An interesting phenomenon is observed when wage differentials are examined over time. From this trace, the wage differentials gradually decreased over time (Figure 3). Furthermore, wage differentials owing to discrimination gradually decreased (Figure 4) and eventually disappeared in the 1940s.

TABLE 2.   BLINDER-OAXACA DECOMPOSITIONS ACCORDING TO NATIONALITY: OLS

	overall	1920-1929	1930-1939	1940-1944
Japanese	4.146	4.168	4.293	3.984
Korean	3.897	3.644	4.017	3.932
difference	0.249***	0.524***	0.276***	0.053***
explained	0.218***	0.382***	0.193***	0.054***
unexplained	0.031***	0.142***	0.083***	-0.001

Note: *** means statistical significance at the 1% level.

We then investigated the wage differentials across the entire wage distribution. We note that there were more wage differentials due to discrimination at the extremes of the wage

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[8] The results of wage equations are presented in Appendix.

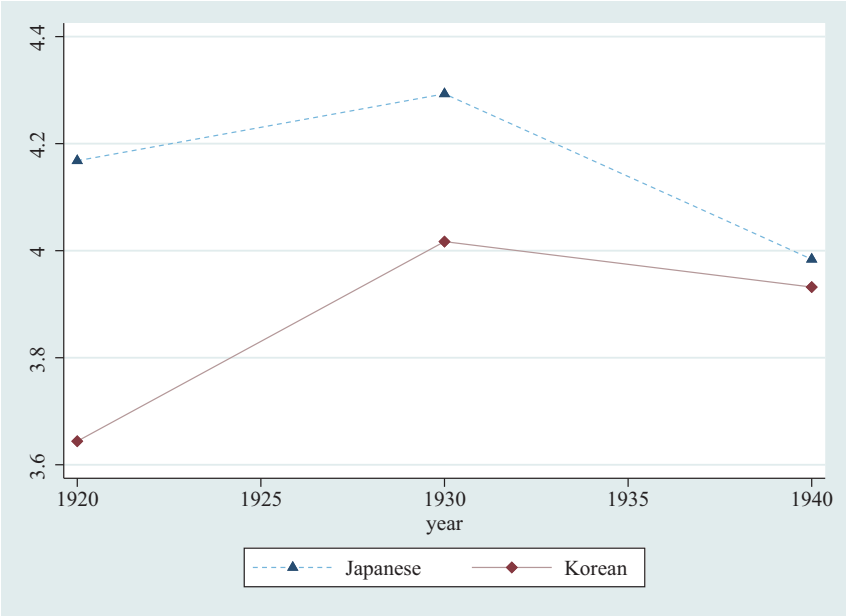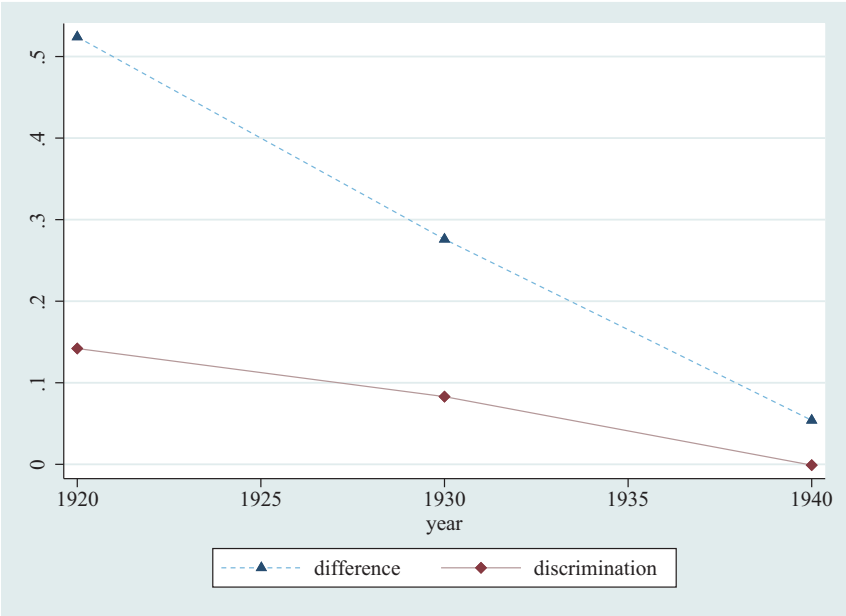FIGURE 3.   ESTIMATED MEAN LOG WAGES ACCORDING TO NATIONALITY

FIGURE 4.   ESTIMATED DIFFERENCES AND DISCRIMINATION ACCORDING TO NATIONALITY

distribution for the entire sample. In other words, differentials due to discrimination exhibited an inverted U shape (Figure 5). However, the discrimination at each quantile differed over time. First, there was a rather uniform pattern across the quantiles in the 1920s, as shown in Figure 6 (a). Second, during the 1930s, discrimination was observed at the top of the wage distribution. High-paid employees faced greater discrimination than low-paid employees in terms of nationality. Third, in the first half of the 1940s, when colonial rule became tyrannical, discrimination based on nationality was concentrated at the bottom of the distribution.

TABLE 3.   BLINDER-OAXACA DECOMPOSITIONS ACCORDING TO NATIONALITY: UQR

	$\tau_{0.1}$	$\tau_{0.25}$	$\tau_{0.5}$	$\tau_{0.75}$	$\tau_{0.9}$
overall					
Japanese	3.512	3.620	4.096	4.580	4.991
Korean	3.268	3.565	3.887	4.269	4.556
difference	0.243***	0.055***	0.209***	0.311***	0.434***
explained	0.047***	0.006	0.345***	0.271***	0.258***
unexplained	0.196***	0.049***	-0.136***	0.040**	0.177***
1920-1929					
Japanese	3.498	3.790	4.196	4.560	4.823
Korean	3.030	3.283	3.626	4.031	4.333
difference	0.467***	0.507***	0.570***	0.529***	0.490***
explained	0.239***	0.405***	0.479***	0.285***	0.224***
unexplained	0.228***	0.102**	0.091**	0.244***	0.267***
1930-1939					
Japanese	3.507	3.718	4.325	4.806	5.165
Korean	3.384	3.651	4.097	4.397	4.661
difference	0.123***	0.067*	0.229***	0.409***	0.504***
explained	0.090***	0.072**	0.168***	0.228***	0.236***
unexplained	0.033	-0.005	0.060*	0.181***	0.268***
1940-1944					
Japanese	3.540	3.583	3.759	4.329	4.871
Korean	3.462	3.614	3.887	4.210	4.573
difference	0.078***	-0.031*	-0.128***	0.120***	0.298***
explained	0.022***	-0.063***	-0.165***	0.276***	0.253***
unexplained	0.056***	0.032**	0.037*	-0.156***	0.045

Note: ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

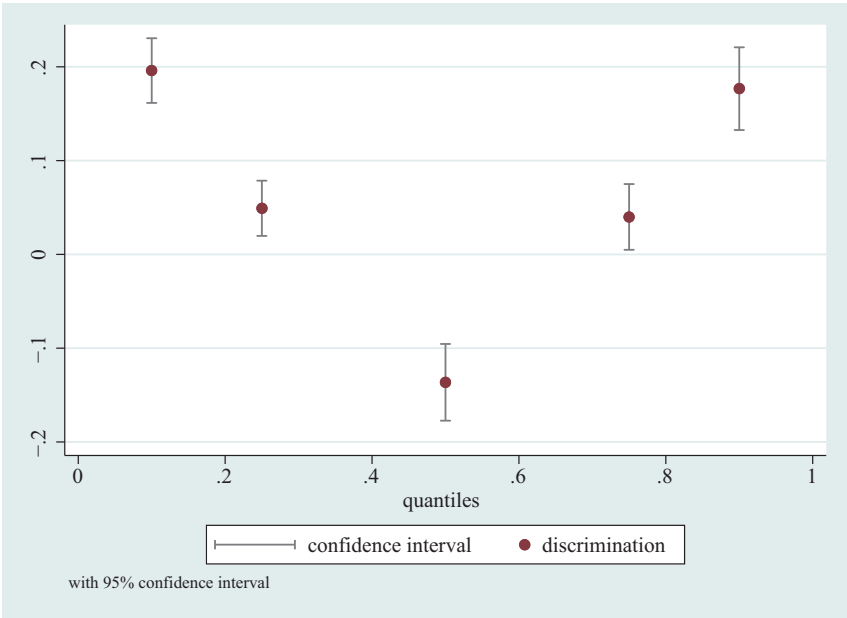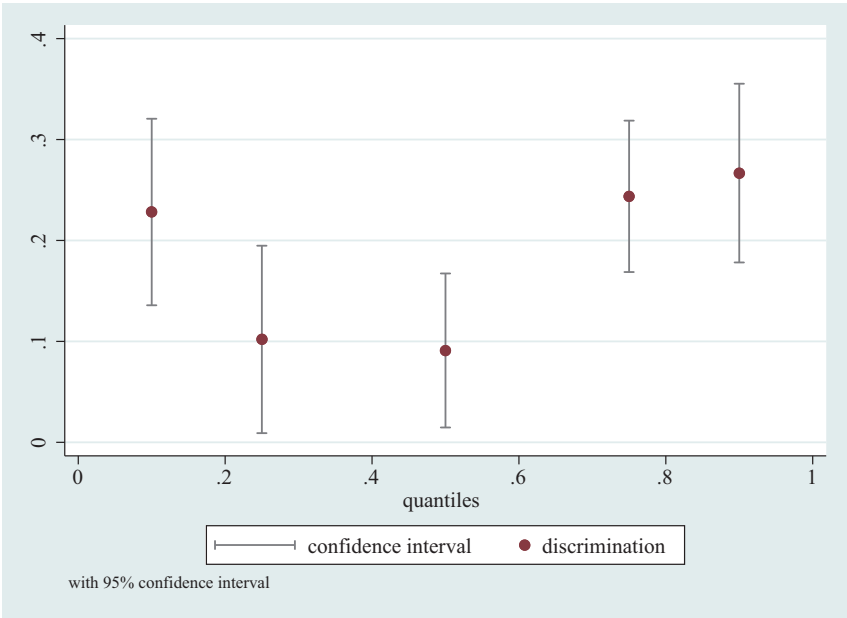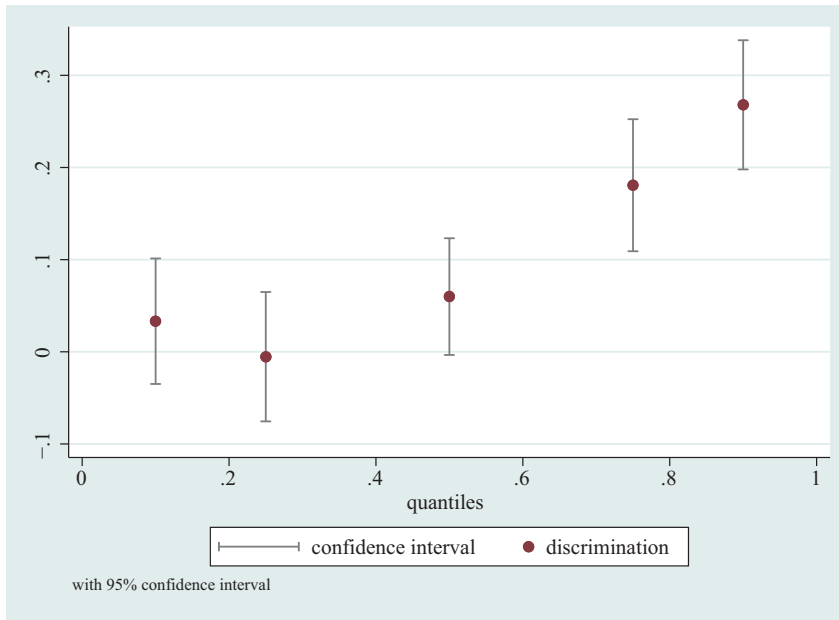FIGURE 5.   DISCRIMINATION IN QUANTILES ACCORDING TO NATIONALITY

FIGURE 6.   DISCRIMINATION IN QUANTILES IN DIFFERENT PERIODS ACCORDING
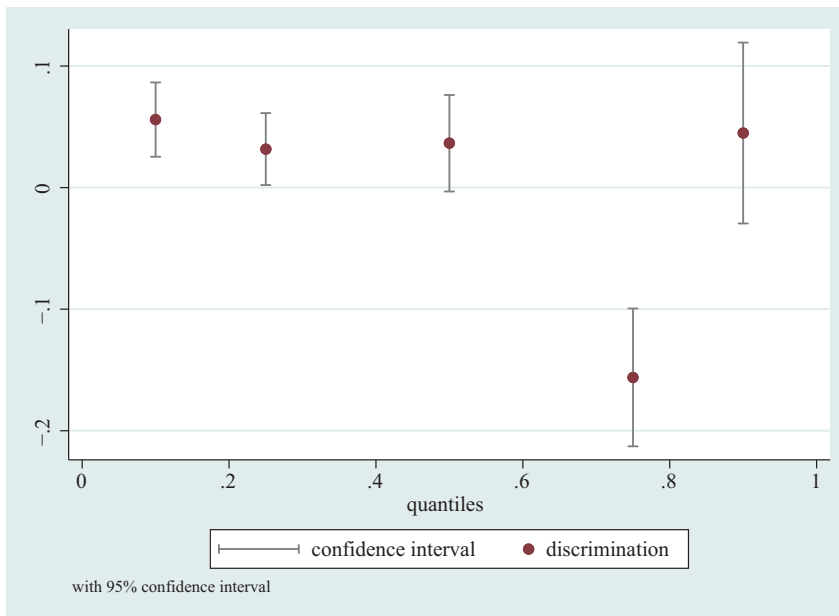TO NATIONALITY

(a) 1920–1929

(b) 1930–1939

(c) 1940–1944

2.   Decompositions According to Gender

We also investigated wage discrimination based on gender (Table 4). First, gender wage discrimination was apparent in the entire sample. Furthermore, in contrast to wage decomposition by nationality, wage discrimination based on gender persisted in the latter part of the colonial period (Figures 7 and 8). Interestingly, discrimination was directed toward male employees during the 1920s, but the trend reversed in the 1930s and continued until the collapse of colonial rule.

TABLE 4.   BLINDER-OAXACA DECOMPOSITIONS ACCORDING TO GENDER: OLS

	overall	1920-1929	1930-1939	1940-1944
male	4.117	4.007	4.233	4.093
female	3.523	3.481	3.406	3.548
difference	0.594***	0.526***	0.827***	0.545***
explained	0.514***	0.621***	0.735***	0.363***
unexplained	0.079***	-0.095***	0.091***	0.182***

Note: *** means statistical significance at the 1% level.

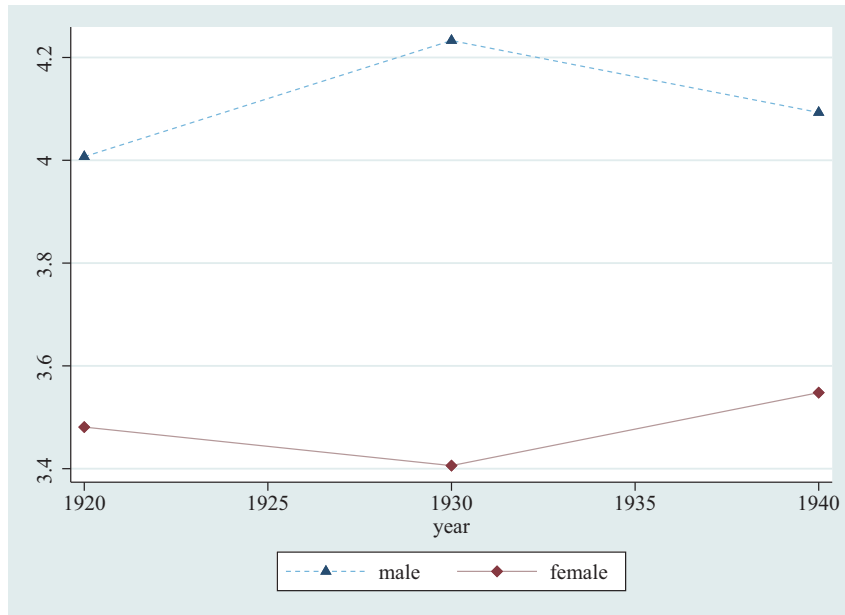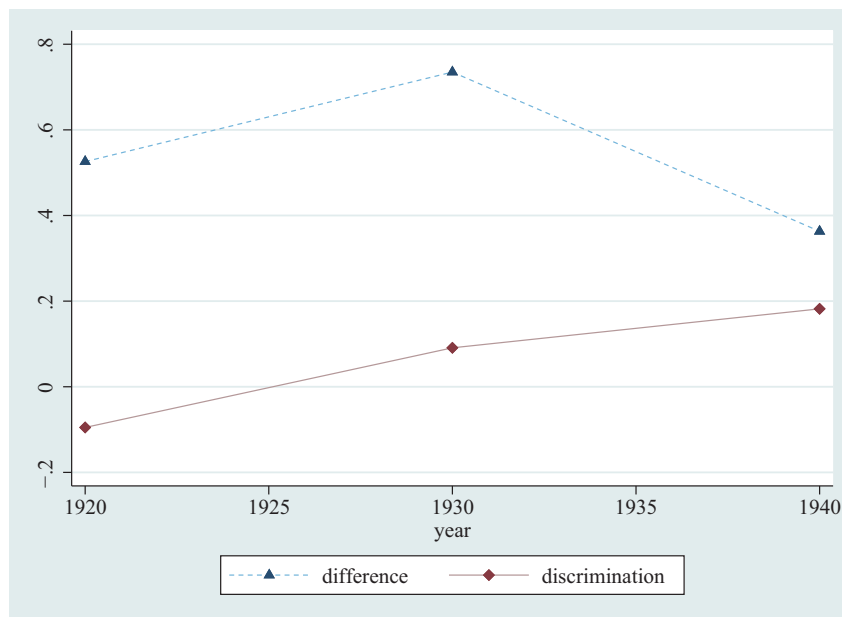FIGURE 7.   ESTIMATED MEAN LOG WAGES ACCORDING TO GENDER

FIGURE 8.   ESTIMATED DIFFERENCES AND DISCRIMINATION ACCORDING TO GENDER

The results of the decomposition for the entire wage distribution differ significantly from those of the decomposition according to nationality. For the overall sample period, the discrimination across quantiles increased monotonically. In addition, at the bottom part of the distribution, discrimination was hardly observed and was even reversed among male employees. However, the discrimination extended to the bottom parts of the distribution as time elapsed. These characteristics persisted over time.

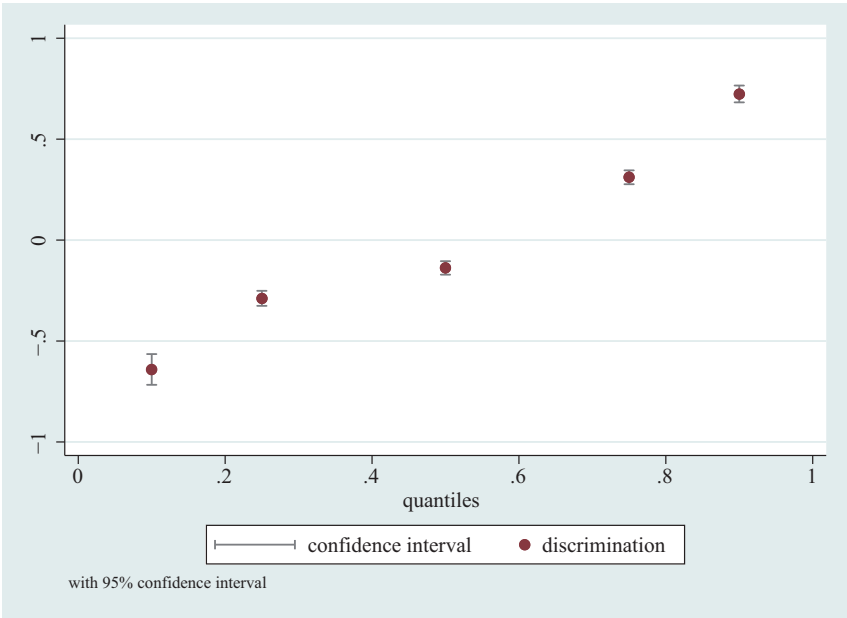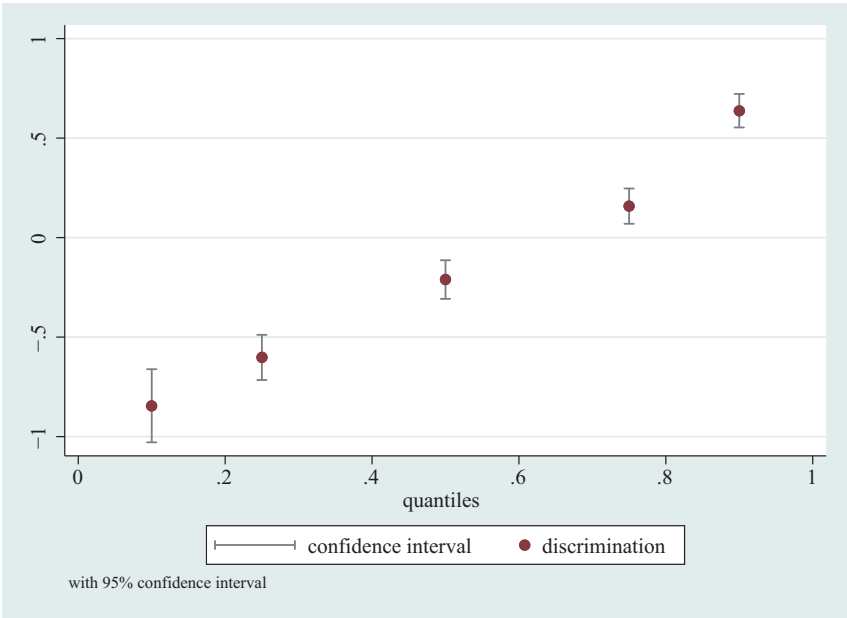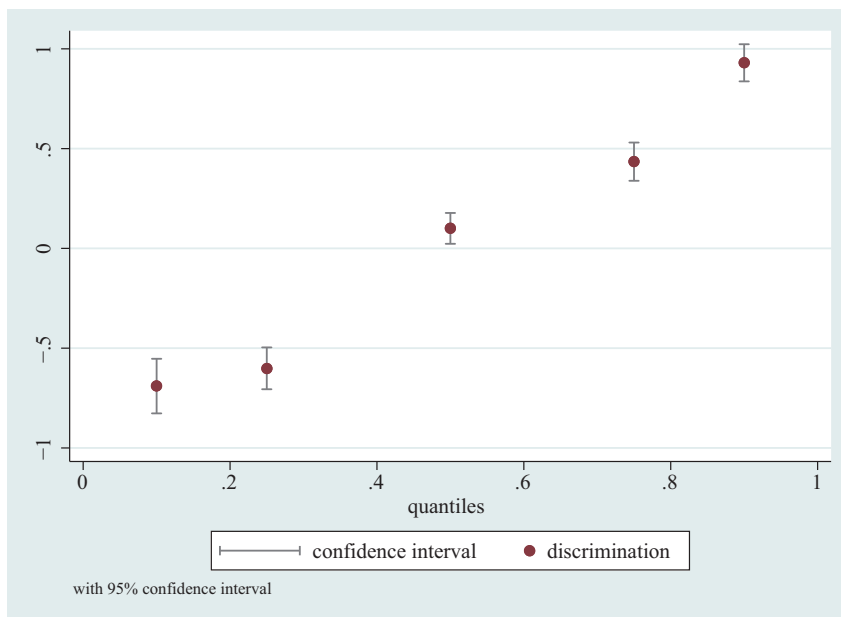FIGURE 9.   DISCRIMINATION IN QUANTILES ACCORDING TO GENDER

FIGURE 10.   DISCRIMINATION IN QUANTILES IN DIFFERENT PERIODS ACCORDING TO GENDER

(a) 1920-1929

(b) 1930–1939

with 95% confidence interval
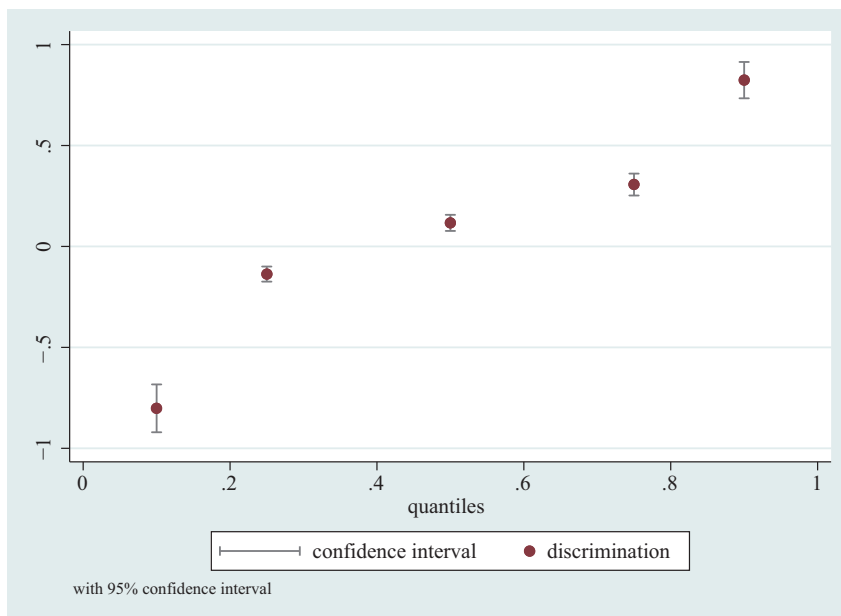
(c) 1940-1944

with 95% confidence interval

TABLE 5.   BLINDER-OAXACA DECOMPOSITIONS ACCORDING TO GENDER: UQR

	$\tau_{0.1}$	$\tau_{0.25}$	$\tau_{0.5}$	$\tau_{0.75}$	$\tau_{0.9}$
overall					
male	3.451	3.756	4.099	4.504	4.887
female	3.419	3.501	3.598	3.631	3.686
difference	0.032***	0.255***	0.501***	0.873***	1.201***
explained	0.673***	0.544***	0.639***	0.562***	0.477***
unexplained	-0.641***	-0.289***	-0.138***	0.311***	0.724***
1920-1929					
male	3.251	3.593	4.027	4.437	4.747
female	3.425	3.494	3.471	3.600	3.680
difference	-0.174***	0.100***	0.556***	0.837***	1.066***
explained	0.671***	0.702***	0.767***	0.679***	0.429***
unexplained	-0.845***	-0.602***	-0.211***	0.158***	0.638***
1930-1939					
male	3.506	3.738	4.275	4.653	5.026
female	3.249	3.299	3.474	3.529	3.617
difference	0.257***	0.439***	0.801***	1.124***	1.408***
explained	0.946***	1.040***	0.701***	0.689***	0.479***
unexplained	-0.690***	-0.601***	0.100***	0.435***	0.930***
1940-1944					
male	3.536	3.772	4.005	4.396	4.803
female	3.450	3.541	3.543	3.615	3.691
difference	0.085***	0.231***	0.462***	0.781***	1.113***
explained	0.887***	0.368***	0.345***	0.474***	0.289***
unexplained	-0.802***	-0.137***	0.117***	0.307***	0.824***

Note: ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

3.   Decompositions According to Nationality for both Genders

We investigated wage differentials according to nationality for male and female employees. Table 2 shows that discrimination based on nationality is substantially attenuated. We further examined whether this phenomenon was homogeneous in the sense that it occurred uniformly in both genders. The results are presented in Tables 6 and 7. Table 6 shows no discrimination

TABLE 6.   BLINDER-OAXACA DECOMPOSITIONS ACCORDING TO NATIONALITY
IN MEN: OLS

	overall	1920-1929	1930-1939	1940-1944
Japanese	4.297	4.216	4.372	4.292
Korean	3.923	3.645	4.031	3.981
difference	0.375***	0.571***	0.342***	0.311***
explained	0.362***	0.440***	0.279***	0.344***
unexplained	0.013	0.131***	0.063***	-0.032***
sample size	6,136	1,749	2,123	2,264

Note: *** means statistical significance at the 1% level.

in wages among male employees in the first column for the overall period. Furthermore, discrimination monotonically decreased toward the end of colonial rule. Thus, similar characteristics were observed for the entire sample.

We also investigated the same problem among female employees. Table 7 shows discrimination in the wages of female employees in the first column. However, this phenomenon is mostly confined to the 1940s. Although there was discrimination based on nationality in both the 1920s and the 1930s, these trends were not statistically significant. In other words, in contrast to the overall sample, discrimination by nationality among female employees occurred during the last phase of colonial rule. Therefore, we conclude that the observations for the entire sample shown in Subsection 6.1 are mostly driven by male employees.

TABLE 7.   BLINDER-OAXACA DECOMPOSITIONS ACCORDING TO NATIONALITY
IN WOMEN: OLS

	overall	1920-1929	1930-1939	1940-1944
Japanese	3.537	3.484	3.401	3.568
Korean	3.462	3.431	3.433	3.466
difference	0.075***	0.053	-0.031	0.102***
explained	0.023***	0.040	-0.018	0.047***
unexplained	0.052***	0.013	0.087	0.055***
sample size	969	82	131	756

Note: *** means statistical significance at the 1% level.

These results are consistent with those of a previous quantile decomposition analysis. Here, we observe that discrimination at the top of the wage distribution (dominated by male workers) was reduced, and discrimination at the bottom (where most women were employed) persisted during the colonial period.

4.   Decompositions According to Gender for Each Nationality

In this subsection, we examine wage discrimination for each nationality. Table 8 presents the results for Japanese employees. Discrimination is evident in the last period. That is, the discrimination became apparent and noticeable during the last stage of colonial rule.

TABLE 8.   BLINDER-OAXACA DECOMPOSITIONS ACCORDING TO GENDER, JAPANESE:
OLS

	overall	1920-1929	1930-1939	1940-1944
male	4.297	4.216	4.372	4.292
female	3.537	3.484	3.401	3.568
difference	0.761***	0.732***	0.971***	0.724***
explained	0.716***	0.881***	0.946***	0.538***
unexplained	0.044***	-0.149***	0.025	0.186***
sample size	3,971	1,186	1,367	1,418

Note: *** means statistical significance at the 1% level.

The situation for Korean employees differs from that of Japanese employees (Table 9). The magnitude of discrimination increased over time. Initially, there was no discrimination in the 1920s; however, statistically significant gaps were observed in subsequent periods.

TABLE 9.   BLINDER-OAXACA DECOMPOSITIONS ACCORDING TO GENDER, KOREAN: OLS

	overall	1920-1929	1930-1939	1940-1944
male	3.923	3.645	4.030	3.981
female	3.462	3.431	3.433	3.466
difference	0.461***	0.214***	0.598***	0.514***
explained	0.334***	0.261**	0.413***	0.327***
unexplained	0.126***	-0.046	0.185**	0.187***
sample size	3,134	645	887	1,602

Note: ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

VII.   *Discussions*

We empirically analyzed the wage structures of the CIB under Japanese rule using precious micro-level individual data. In particular, we focused on determining the wage differentials for both nationality and gender. We then investigated how much could be attributed to discrimination in wage differentials by nationality and gender using the well-established Blinder-Oaxaca decomposition. In addition, we explored discrimination patterns over time, distributional characteristics of discrimination by extending the Blinder-Oaxaca decomposition, and gender discrimination, all of which were first attempted in this study among studies using the same data. In this respect, this study can be regarded as the most comprehensive thus far regarding wage structures in Korea under Japanese rule.

The empirical results revealed that the degree of discrimination gradually decreased toward the end of colonial rule and ultimately disappeared. In previous literature, there was no such observed wage discrimination in nationality on the one hand; on the other hand, it was argued that there was apparent discrimination. These studies were based on the researchers' selected time periods. Under these circumstances, our study presents a more convincing and comprehensive picture of wage discrimination by nationality, based on information extracted from 1920 to 1944 data.

Wage discrimination based on gender was first explored in our study, and was observed constantly and clearly throughout the colonial period. Unexpectedly, the magnitude of discrimination was much larger than that in the case of nationality. Finally, it was observed that, although wage discrimination based on nationality decreased toward the end of colonial rule, it increased among female workers in the final phase of the colonial period, which was not present in the early and mid-period of colonial rule. Suppressive colonial rule may be concentrated among female workers.

Overall, we can conclude that discrimination at the top of the wage distribution (dominated by male workers) was reduced, and discrimination at the bottom (where most women were employed) persisted during the colonial period. This phenomenon may be because more Korean

employees were promoted to the middle manager level in the organizational hierarchy and more female employees were employed than before. As the Pacific War broke out and World War II became full-scale, male Japanese workers were drafted. Thus, the promotion of Korean workers occurred more frequently, and more female workers started to fill the shortage of employment.[9] Thus, toward the end of the Japanese colonial rule, it may be that discrimination at the top part of the wage distribution was reduced and discrimination at the bottom persisted.

Further studies should be conducted using the same data. The data include information on retirement, death, and related remuneration. Therefore, studies on remuneration systems for white-collar workers during the Japanese colonial period should be conducted, as this topic has not yet been explored. In addition, by investigating different tenure patterns by nationality and gender, we may be able to understand the human resource management system in the white-collar labor market during the Japanese colonial period.

One limitation of the current study is its data characteristics. The data used did not include all CIB employees. Therefore, it may not be justifiable to generalize and extend this study's empirical results on wage structures to the entire CIB and white-collar labor market in the Japanese colonial era. Nevertheless, we used the only available individual micro data, and the empirical results based on the data are believed to provide at least partial information on wage structures in Korea under Japanese rule.

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[9] Regarding discrimination in promotion by nationality, there is an interesting reminiscence by a CIB Korean employee (Choi (1946)). Evidence of the increase in the number of female workers in this period is shown in Sun (2018) using 1943 data. Sun (2018) also showed that the wage differential by nationality is mainly due to the promotion structures.

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APPENDIX

TABLE A1.   ESTIMATION RESULTS OF WAGE EQUATIONS

	overall	1920-2929	1930-1939	1940-1944
age	0.014***(0.001)	0.020***(0.002)	0.018***(0.002)	0.011***(0.001)
tenure	0.042***(0.001)	0.058***(0.003)	0.043***(0.002)	0.041***(0.002)
expe	0.017***(0.001)	0.016***(0.002)	0.007***(0.002)	0.009***(0.002)
edu	0.072***(0.002)	0.053***(0.003)	0.064***(0.003)	0.080***(0.002)
eduq	0.006***(0.001)	0.011***(0.002)	0.006***(0.001)	0.004***(0.001)
hightech	-0.012(0.010)	0.007(0.014)	0.095***(0.026)	0.004(0.033)
lowtech	-0.272***(0.009)	-0.258***(0.020)	-0.377***(0.018)	-0.148***(0.010)
female	-0.079***(0.010)	0.095***(0.034)	-0.091***(0.025)	-0.182***(0.010)
Korean	-0.031***(0.007)	-0.142***(0.018)	-0.083***(0.013)	0.001(0.001)