Does Wage Premium Exist for Those Who Fulfilled Compulsory Military Service? Evidence from Simple Mathematical Models and Descriptive Analyses*

Kwon, Namho**· Bae, Kwang Bin***· Sohn, Hosung****

This paper presents a theoretical model and tests the hypothesis descriptively that people who fulfilled compulsory military service have wage premium in the South Korean labor market. Simple models are developed to explain both the taste-based discrimination and statistical discrimination which can possibly lead to a wage premium for the non-exempted person. The descriptive OLS analysis shows that a wage premium does not exist for those who have fulfilled military duty. The strict causal interpretation cannot be granted for the estimated result, however, because of the endogeneity of the exemption status. We therefore argue that future studies should engage in isolating the causal impact of the exemption on labor market outcome in order to derive useful policy implications.

Key Words: Wage premium, taste-based discrimination, statistical discrimination

I. Introduction

In a competitive labor market, neoclassical labor economic theory indicates that wage is determined by marginal productivity of labor. If there exist any wage differentials, they are due to the differences in productivity. In a real labor market, however, equal pay for equal productivity, in general, does not hold, even if productivity is equal. This inequality created by factors that are irrelevant to productivity can be regarded as discrimination.

* 이 논문은 2017년도 중앙대학교 학술연구비 지원에 의한 것임
** 제1저자, 한국조세재정연구원 부연구위원(nhkwon@kipf.re.kr)
*** 제2저자, 동국대학교 조교수(kbae@dongguk.edu)
**** 교신저자, 중앙대학교 조교수(hsohn@cau.ac.kr)
There is a potential factor of labor market discrimination in South Korea. The country requires a specific amount of military service from each of its male citizens (excluding men who have physical or mental disorders). Because of its compulsory military service system, whether a person has served in the military may act as a factor for labor market discrimination. Serving in the military in early twenties requires physical, mental, and financial sacrifice. In turn, people often consider that they deserve some form of remuneration as compensation for this sacrifice. In this aspect, even if it is not relevant to one’s current career, almost all firms in South Korea recognize the length of compulsory military service as work experience. By introducing this service period into work experience, employees who have served in the military are higher in the salary class than those who have not served in the military, even if employees have entered a company at the same time and perform similar jobs. As a consequence, it is discriminatory to females who cannot, in principle, serve in the military, as well as to those who are “legally” exempted from the compulsory military service.

As a matter of course, there is little opposition to compensating those who have devoted their time to serving the nation. Although there are few productivity differences between those who have served the nation and those who cannot, however, providing excessive amounts of benefits to people with military background is problematic. As a result, there are incessant disputes in South Korea on how and to what extent these people should be compensated. In order to settle the dispute, however, it is important to examine whether the discrimination exists in the labor market. Therefore, this paper investigates whether the discrimination is indeed salient among those who are exempted from the service. Testing the degree of discrimination in the labor market provides an important policy implication with regard to settling the dispute as well as to setting up a desirable compensation system for veterans.

Using simple mathematical models, we show that discrimination may be induced by taste-based and statistical discrimination. We also provide descriptive results using OLS estimator. The result of the OLS estimation shows that there is a positive relationship between males’ veteran status and wage. The extent of the premium of veteran status on monthly wage is approximately 1.3 percentage points. The average monthly wage in the sample of exempted people is 1,480,600 Won, and accordingly, the premium of veteran status is about 150,000 Won per month, which we believe to be practically insignificant.
II. Background

The military service law of South Korea, one of only a few nations that requires its citizens to serve in the armed forces, drafts males of ages between 19 and 31. As a result, adult males must serve in the military, and the period of service is about two years. When enlisted, people are segregated from society and their families. In addition, they are subject to restrictions on physical and press freedom. Compared to those who are exempted from the duty, they are being deprived of an opportunity to devote time to self-improvement. It also entails many forms of social costs. For instance, many adult males try to unlawfully dodge or defer military duties until the age of 36.1) The increase in the number of illegal draft evaders promotes relative deprivations among ordinary citizens, which is clearly a cost for the society. Furthermore, it is reported that about 1,000 military servants go absent without leave (AWOL) annually.2) AWOL may act as a potential factor for crime. Besides, some soldiers commit suicide during their service periods. Suicides constitute nearly 40 percent of total military-related deaths.3)

In order to compensate personal and social costs, the government tries to provide benefits to those who have performed military duties, especially in the labor market. For instance, in the past, the government gave additional points to veterans when they applied to public institutions. It also provided a right to choose their department after their training periods. On the other hand, although many of these practices have disappeared nowadays, there still exists some form of assistance, especially in the private sectors. For example, many firms incorporate employees’ military service experience into their work experience, and as a result, people who have finished their duties are set on a higher step in the salary class. Some firms even limit people who have not finished their military duties from applying to the companies unless they are legally exempted from the duties. Even if they do not limit their applications, it is quite evident in the South Korea labor market that firms prefer those who have completed their military duties.

1) At the age of 36, even the illegal draft evaders are permanently exempted from serving the military service.
2) Estimate from Information disclosure claimed by Information Disclosure Center for Transparent Society, an NPO in South Korea (http://www.opengirok.or.kr/).
The Saramin, an employment portal in South Korea, conducted an interesting opinion poll of 335 human resources officers. As can be seen from Figure 1, 73.4 percent of firms give preference to employees with experience in the military. Hence, it is quite plausible that the veterans are in a dominant position in the labor market, and there is a possibility that whether a male has completed the duty or not can act as a discriminatory factor.

III. Theoretical Review

To discriminate against someone is to treat them differently based on some specific characteristics of that person even if a person possesses identical conditions as other people. Utilizing the above definition, we may define labor market discrimination as putting differences on wage or working conditions by considering the disparities of characteristics (sex, religion, and/or race) that are not related to productivity. Under this definition, we have to be attentive to a few things. That is, in order to conclude that there is discrimination in the labor market, we have to verify two things.

First, there must be a “specific effect” on the wage and the labor conditions of the discriminatee as a result of labor market discrimination. We cannot conclude that an employee is discriminated against in the labor market simply because the employer has a
prejudice against some minority groups. Second, we can say that there is labor market discrimination if this discrimination exists systematically and constantly in the labor market. We cannot say that there is discrimination based on an unsystematic and temporary phenomenon.

To account for the labor market discrimination, two representative models have been developed by researchers. One is “taste-based discrimination,” and the other is “statistical discrimination.” According to Becker (1971), taste-based discrimination arises when employers possess prejudices against some specific groups. Suppose there are two groups. People in one group have high productivity, and productivity is low for people in the other group. The discriminatory employer, however, has some form of antipathy toward people in the high productivity group. As a consequence, the employee does not want to hire people in that group. With the same wage level, therefore, the employer has to employ people in a low productivity group whereas the non-discriminatory employer employs people in the counterpart. As a result of this hiring discrepancy, the taste-based employer has to abandon some portions of profits compared to the upright employer. In this scenario, the probability of employment or the labor market conditions of people in the discriminatory category would be likely to deteriorate as the discriminating employer’s distastes intensify. The scenario is necessarily connected to the market of imperfect competition because if not, workers can quit their jobs any time and seek other jobs.

According to Phelps (1972), and Aigner and Cain (1977), labor market discrimination may crop up in different ways. Because employers cannot observe every characteristic of employees, these inability to observe act as a discriminatory factor. Employers, possess information regarding observable characteristics such as educational level, sex, and work experience especially when they try to hire some workers. These explicit attributes, however, have a partial correlation (not to mention causation) to productivity. It is natural to conclude that rather their organizing abilities, planning abilities, patience, catholicity, sincerities, and/or interpersonal relations skills matter most with regard to their productivity. To make a judgment on these abstract traits of would-be employees, employers often rely on estimated mean characteristics or beliefs that they vaguely have on people in some specific groups. For instance, it is quite common to consider people with higher educational attainment as clever. Or, some might believe that graduates from
top universities are more brilliant than those who are from low-ranked schools. All of these are an example of statistical discrimination.

Assessing the employees based on the estimated mean quality or vague beliefs is evidently discrimination because unobservable characteristics of employees are difficult to estimate quantitatively, and consequently, information that employers hold themselves is likely to be subjective to bias. Moreover, even if we assume that the estimated mean features are accurately estimated, judging people who exceed or fall short of the mean estimates by these standards is still discriminating.

IV. Literature Review

There are scores of research, especially in the U.S., that examined the impact of serving in the military. As mentioned in Teachman and Call (1996), the rationale for the existing research relies on the following beliefs: A person with a military background possesses distinct background characteristics from those who do not; the fact that a person served in the military itself alters one’s personality; and military experiences act as a unique signal on the human capital of oneself in the labor market. Building upon these three hypotheses, the aim of the existing research is multifarious. Some examples are its impact on crime rate, marriage, health, and mortality (MacLean and Elder 2007). The relevant literatures, in line with the objective of this paper are the ones that delve into the relationship between military experience and economic outcomes, such as one’s earnings, employment level, and occupational attainment.

Knapp (1976) was the first one to take the advantage of using regression analysis. Since then, other researchers have utilized the simple ordinary least squares (OLS) method in eliciting the impact of military service (Villemez and Kasarda 1976, Little and Fredland 1979, Kohen and Shields 1980, Rosen and Taubman 1982, Fredland and Little 1985, Goldberg and Warner 1987, Yu 1992, Phillips, Andrisani, Daymont, and Gilroy 1992, and MacLean 2008). 4) Because of the possibility of controlling multiple variables in the OLS

4) Contrary to other researchers, Villemez and Kasarda 1976, and MacLean 2008 used Path Analysis and multiple Indicator Multiple Cause (MIMIC) methods to analyze the impact of military experience.
Does Wage Premium Exist for Those Who Fulfilled Compulsory Military Service?

model, these studies have tried to remedy selection bias problems by considering many observable variables in the estimation process. Interestingly, although varied with respect to the extent of the effect, all of these studies have concluded that veterans earn more than non-veteran cohorts.

De Tray (1980), on the other hand, tried to control unobservable characteristics. In particular, he tried to control for the innate ability by examining the changes in wages over time. Furthermore, Teachman (2004) used a fixed effects model to control for family-specific and person-specific factors that are likely to bias the estimator. These two studies are more effective compared to other studies in deriving less biased estimators. The conclusions of these three studies, however, are different. While De Tray (1980) obtained veterans’ premium, Teachman (2004) extracted no such premium.

As can be seen from the discussion above, conclusions of the research have not been settled unilaterally. We can, however, observe some homogeneous direction between military experience and earnings within the same methodological framework. For instance, although statistically not robust as to eliciting causal relationships, most of the work conducted using conventional mean difference and OLS method reports that there is a positive relationship between veteran status and post-military civilian earnings. To be more specific, most of the work agrees that military experience is, in particular, favorable for less-advantaged veterans such as non-whites with regard to the civilian labor market.

V. Simple Model

1. Taste-based discrimination

As Becker (1971) notes, discrimination occurs as a result of employer’s distaste against a certain group, e.g., people who are exempted from the military duty. Suppose that there exists many employers in the labor markets who feel a disinclination to hire exempted workers and that the worker cannot observe employer’s preferences unless they have worked for a certain amount of time. In this case, it puts some kind of restriction on the worker side to freely exit and enter the market. The situation can be interpreted as a situation of imperfect competition where an employer enjoys a form of monopsony power.
and may discriminate individuals persistently without having a risk of a worker leaving the workforce. In this instance, the level of wages will be lower for the discriminated.

To demonstrate, assume that the market is composed of two groups of workers: $F$, who fulfilled military duty, and $E$, who are exempted from the duty. Employers’ utility function can be represented as

$$U(Y, W, d_c) = Y - W - d_c$$

where $Y$ corresponds to worker productivity, $W$ indicates wage paid to the workers, and

$$d_c = \begin{cases} 
  d_c > 0, & \text{if the worker hired has been exempted from the duty;} \\
  d_c = 0, & \text{otherwise.}
\end{cases}$$

$d_c$ measures disinclination that the employer feels when he hires workers with no military experiences. Let labor supply $L^*(W) = V(W)$, a cumulative distribution function (CDF), is an increasing function of wage level. Suppose total number of workers in the labor market is $F + E = M$. Now we assume that for employee $i$, $y_i = y$, $\forall i \in \{F, E\}$. It implies that each employee produces a same exogenous amount of quantity $y$. Then the labor supply of people in group $i$ is equal to $L^*(W_i) = V(W_i)$, $\forall i \in \{F, E\}$. Let the employer has a taste-based discrimination with respect to workers in group $E$. Then the employer faces following profit maximization problem:

$$Max \quad \Pi(W_F, W_E) = V(W_F)(Y - W_F) + V(W_E)(Y - W_E - d_c)$$

Taking the first-order condition with respect to $W_F$, we have
Does Wage Premium Exist for Those Who Fulfilled Compulsory Military Service?

\[
\frac{\partial \Pi(W_F, W_E)}{\partial W_F} = \frac{\partial V(W_F)}{\partial W_F}(Y - W_F) - V(W_F) = 0
\]
\[
\Rightarrow \frac{\partial V(W_F)}{\partial W_F} Y = \frac{\partial V(W_F)}{\partial W_F} W_F + V(W_F)
\]
\[
\Rightarrow W_F = \frac{1}{1 + (\partial V_F/\partial W_F)(W_F/V_F)} Y
\]

Now if we let \((\partial W_F/\partial V_F)(V_F/W_F) = \gamma^V(W_F)\) be an elasticity of labor supply with respect to wage, then our final result would be

\[
W^*_F = \frac{\gamma^V(W_F)}{1 + \gamma^V(W_F)} Y
\]

For workers in group \(E\), we again take the first-order condition with respect to \(W_E\) and applying the same reason as above,

\[
\frac{\partial \Pi(W_F, W_E)}{\partial W_E} = \frac{\partial V(W_E)}{\partial W_E}(Y - W_E - d_e) - V(W_E) = 0
\]

and we derive our final result to be

\[
W^*_E = \frac{\gamma^V(W_E)}{1 + \gamma^V(W_E)} (Y - d_e)
\]

Observe that once workers of each group are hired, we have \(d_e > 0\) from equation (1), and consequently,
\[ W_F^* = \frac{\gamma^V(W_F)}{1 + \gamma^V(W_F)} Y > \frac{\gamma^V(W_E)}{1 + \gamma^V(W_E)} (Y - d_e) = W_E^* \]

Hence, in a monopsony market, wage level for people who are exempted from the military duty is lower, and accordingly, we may argue that the non-veterans are discriminated in the labor market.

2. Statistical discrimination

On the other hand, the discrimination against the exempted is not only probable in a market of imperfect competition, but also feasible with an assumption of perfect competitions if one has a statistical discrimination against the non-veterans. Consider a labor market with \( Q \) non-veterans with productivity \( \xi_i, \forall i \in Q \), who are in the process of applying for a firm. Suppose further that these applicants are equipped with two different levels of productivity: high (+) or low (-) level. Now for simplicity, we assume that workers have zero opportunity cost of labor, and

\[
\xi = \begin{cases} 
\xi^+ > 0, & \text{if the applicants possess high productivity;} \\
\xi^- = 0, & \text{otherwise.}
\end{cases}
\]

Now suppose the nation has a law that forbids an employer from discriminating the people without military backgrounds. The employer, however, has a tendency to determine the productivity of workers by his veteran status. Because of the law, however, the employer cannot prevent potential workers who are exempted from the military service from applying to the company. In order to discern potential applicants, however, an employer makes it an "option" for the would-be applicants to submit an official document (\( D \)) that proves one's veteran status. Here, we may simply assume that the cost of finding whether the applicants are exempted or not is zero for one can just look at the application materials.

We let that the employer is able to detect efficient workers (\( \xi^+ \) type) with a probability equal to \( \delta \in [0, 1] \) by looking at the documents submitted by the applicant. On the other
Does Wage Premium Exist for Those Who Fulfilled Compulsory Military Service?

hand, inefficient workers ($\xi^-$ type) have a probability $p \in [0, 1]$ of submitting the document and being wrongly determined as efficient workers ($\xi^+$ type). Suppose further that the employer estimates (or believes) the proportion of efficient workers in the pool of non-veteran applicants is $\lambda \in [0, 1]$, and the share of inefficient workers to be $\mu \in [0, 1]$, such that $\lambda + \mu = 1$.

In this setting, it is important to note that having submitted the document does not guarantee that the hired worker is efficient because inefficient workers have a probability $p$ of submitting the document. As a consequence, the employer needs to find out the probability that people who submitted the document is, indeed, efficient workers. To put it differently, the employer wants to calculate the posterior probability

$$P(\xi = \xi^+ | D)$$

By the Bayes’ theorem,

$$P(\xi = \xi^+ | D) = \frac{P(D | \xi = \xi^+) P(\xi = \xi^+)}{P(D)}$$

$$= \frac{P(D | \xi = \xi^+) P(\xi = \xi^+)}{P(D | \xi = \xi^+) P(\xi = \xi^+) + P(D | \xi = \xi^-) P(\xi = \xi^-)}$$

With all the assumptions mentioned above, equation (2) becomes

$$P(\xi = \xi^+ | D) = \frac{\delta \lambda}{\delta \lambda + p \mu}$$

and for the employer, the expected productivity of a worker who submitted the document is

$$E(\xi = \xi^+ | D) = \xi^+ \frac{\delta \lambda}{\delta \lambda + p \mu}$$
Thus, in a perfect competitive market,

\[ W(\lambda, \mu) = \xi^+ \frac{\delta \lambda}{\delta \lambda + p \mu} \]  

(3)

where \( W \) corresponds to the wage level for the exempted person.

Note that \( W \) in equation (3) applies to the efficient workers as well as to the proportion \( p \) of inefficient workers who submitted the document. If we take a partial derivative with respect to \( \mu \) in equation (3),

\[ \frac{\partial W(\lambda, \mu)}{\partial \mu} = -p \frac{\delta \xi^+ \lambda}{(\delta \lambda + p \mu)^2} < 0 \]  

(4)

Equation (4) implies that if employers believe that the proportion of inefficient workers, \( \mu \), is higher, then the level of wage given to the efficient workers will decrease. In other words, the level of \( \mu \), which can be said of as a degree of statistical discrimination that the employer possesses, constitutes a source of discriminatory factor in determining the wage level of people who were exempted from serving the duty.

We have shown that wage level for the exempted person may be lower both in a competitive market as well as in a market of imperfect competition. Having above discussions in view, we proceed in next chapter on estimating wage differentials between veterans and non-veterans.

VI. Data and Results

1. Data

The empirical analysis of the paper was conducted using the dataset developed by the Korean Labor and Income Panel Study (KLIP). KLIP is a longitudinal survey that has been administered by the Korean Labor Institute (KLI), a public research institute in South
Korea. The advantage of the dataset is that it contains information on whether the person has fulfilled the military service or not. The subjects of the survey are 5,000 representative households living in urban areas of South Korea. Starting from 1998, it surveyed the labor market and income activities of households and their individuals annually until 2008, and it maintains a sustained rate of the initial sample of about 75 percent (3,773 households).

<table>
<thead>
<tr>
<th>Sample Year</th>
<th>Sample Size</th>
<th>Served</th>
<th>Exempted</th>
<th>Average Wage (Served)</th>
<th>Average Wage (Exempted)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1998</td>
<td>2,502</td>
<td>1,939</td>
<td>563</td>
<td>134.82</td>
<td>117.34</td>
</tr>
<tr>
<td>1999</td>
<td>2,391</td>
<td>1,806</td>
<td>585</td>
<td>127.94</td>
<td>107.58</td>
</tr>
<tr>
<td>2000</td>
<td>2,252</td>
<td>1,686</td>
<td>566</td>
<td>135.02</td>
<td>113.23</td>
</tr>
<tr>
<td>2001</td>
<td>2,273</td>
<td>1,709</td>
<td>564</td>
<td>149.00</td>
<td>123.83</td>
</tr>
<tr>
<td>2002</td>
<td>2,334</td>
<td>1,759</td>
<td>575</td>
<td>162.78</td>
<td>131.87</td>
</tr>
<tr>
<td>2003</td>
<td>2,463</td>
<td>1,816</td>
<td>647</td>
<td>181.72</td>
<td>140.47</td>
</tr>
<tr>
<td>2004</td>
<td>2,496</td>
<td>1,833</td>
<td>663</td>
<td>200.78</td>
<td>151.04</td>
</tr>
<tr>
<td>2005</td>
<td>2,427</td>
<td>1,750</td>
<td>677</td>
<td>212.90</td>
<td>162.00</td>
</tr>
<tr>
<td>2006</td>
<td>2,554</td>
<td>1,804</td>
<td>750</td>
<td>228.36</td>
<td>169.99</td>
</tr>
<tr>
<td>2007</td>
<td>2,568</td>
<td>1,765</td>
<td>803</td>
<td>252.37</td>
<td>176.21</td>
</tr>
<tr>
<td>2008</td>
<td>2,575</td>
<td>1,743</td>
<td>832</td>
<td>254.67</td>
<td>196.65</td>
</tr>
<tr>
<td>Total</td>
<td>26,845</td>
<td>19,610</td>
<td>7,225</td>
<td>185.40</td>
<td>148.46</td>
</tr>
</tbody>
</table>

Note: In 1,000 Korean currency (Approximately $1=1,100 Won)

This study uses the annual data (from 1998 to 2008, total of 11 years), and for the purpose of the analysis, only male samples will be used for the estimation because females are excluded from the compulsory military service. Moreover, males who are employed and wage earners only are used in the analysis. In Table 1, yearly averages for some of the key variables are presented for each year. A simple mean estimate of the wage differentials between those who have fulfilled the military service and those exempted is presented in Figure 2. As can be seen from the figure, simple mean difference shows that on average, veterans are consistently earning more than non-veterans, and the gap is widening over the sample period. The widening gap might be accounted for by the fact that the exemption rate is steadily declining. Because of the declining trend, the non-veterans may be regarded as a rarer case. As a result, people may be more discriminating against the exempted.
2. Estimation Model and Empirical Results

An estimation has been conducted by conventional OLS methods. The model used for the analysis is as follows:

\[
\ln Y = \beta_0 + \beta_1 D_i + \mathbf{X} \Gamma + \eta
\]

Here, \( Y \) indicates wage, \( D \) indicates the dummy for whether a person served a military or not, \( X \) is a vector of covariates.

We use the natural log of the outcome variable, so the coefficient estimates are interpreted as a percentage difference. We begin with a very simple regression with just single explanatory variable: whether a male was exempted from the duty or not (Served: \( D \)). As can be seen from Table 2, we observe a coefficient of 0.228 implying that people who served the duty earn approximately 22.8 percent more compared with those who did not serve.

In Model 2, we include other variables such as marital status and schooling. The estimated effect changes to negative values (-0.013). Model 3 controls for work
Table 2: Ordinary Least Squares (OLS) Estimates

<table>
<thead>
<tr>
<th>Explanatory Variables</th>
<th>Model (1)</th>
<th>Model (2)</th>
<th>Model (3)</th>
<th>Model (4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Served</td>
<td>0.228***</td>
<td>−0.013*</td>
<td>−0.009</td>
<td>−0.013</td>
</tr>
<tr>
<td></td>
<td>(0.008)</td>
<td>(0.007)</td>
<td>(0.007)</td>
<td>(0.012)</td>
</tr>
<tr>
<td>Married</td>
<td>0.152***</td>
<td>0.133***</td>
<td>0.124***</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.008)</td>
<td>(0.008)</td>
<td>(0.008)</td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>0.115***</td>
<td>0.094***</td>
<td>0.096***</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.002)</td>
<td>(0.002)</td>
<td>(0.002)</td>
<td></td>
</tr>
<tr>
<td>Age Squared</td>
<td>−0.001***</td>
<td>−0.001***</td>
<td>−0.001***</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.000)</td>
<td>(0.000)</td>
<td>(0.000)</td>
<td></td>
</tr>
<tr>
<td>Educational Attainment (Years)</td>
<td>0.187***</td>
<td>0.170***</td>
<td>0.169***</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.002)</td>
<td>(0.002)</td>
<td>(0.003)</td>
<td></td>
</tr>
<tr>
<td>Work Experience (Years)</td>
<td>0.020***</td>
<td>0.019***</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.000)</td>
<td>(0.000)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intercept</td>
<td>4.831***</td>
<td>1.853***</td>
<td>2.315***</td>
<td>2.182***</td>
</tr>
<tr>
<td></td>
<td>(0.007)</td>
<td>(0.040)</td>
<td>(0.040)</td>
<td>(0.041)</td>
</tr>
<tr>
<td>Industry Type</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agriculture, Forestry, &amp; Fishery</td>
<td>0.021</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.035)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mining</td>
<td>0.194***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.074)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Manufacturing</td>
<td>0.139***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.011)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electricity, Gas, and Water</td>
<td>0.198***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.030)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Construction</td>
<td>0.020</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.012)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wholesale and Retail Sale</td>
<td>0.099***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.013)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hotel and Food</td>
<td>0.053**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.021)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transportation</td>
<td>−0.026*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.015)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Information and Communication</td>
<td>0.135***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.023)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Finance</td>
<td>0.256***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.018)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Real Estate</td>
<td>0.096***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.013)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Public Sectors</td>
<td>0.027*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.016)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Education Sectors</td>
<td>−0.011</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.016)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adjusted R–Squared</td>
<td>0.029</td>
<td>0.341</td>
<td>0.390</td>
<td>0.403</td>
</tr>
<tr>
<td></td>
<td>1.000</td>
<td>1.120</td>
<td>1.120</td>
<td>1.130</td>
</tr>
<tr>
<td>VIF (for the &quot;Served&quot; variable)</td>
<td>26,724</td>
<td>26,557</td>
<td>26,402</td>
<td>26,402</td>
</tr>
<tr>
<td>Sample Size</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notes: Standard errors are in parentheses. Sample size varies by the model due to some missing values presented in certain control variables.
experience, and we still observe negative values for the “Served” variable. While Model 3’s coefficient for “Served” did not produce a significant result as compared with other Models, OLS regressions seem to imply that the effect of veteran status on wage is quite small. Directional effects for other variables seem quite reasonable. For example, people who are married, older, have higher degrees, and with more work experience turned out to be earning more than their counterparts.

The last OLS model, Model 4, contains industry types to account for heterogeneous effects of working sectors. While the extent of the effect is almost negligible, implying that there are few differences between those who served in the military and those who did not, the model still produced a negative coefficient (-0.012). In this Model, we find the effect of covariates other than “Served” to be all reasonable. For instance, among the industry types, it is estimated that those who work in financial sectors earn the most, which is quite natural because the wage level of financial industries is higher, on average, than that of other sectors.

Note, however, that the veteran status is highly likely to be correlated with other unobservable factors that are excluded in the wage determining equations, and may suffer from omitted variable bias. The direction of the bias is not obvious because it is difficult to determine whether there exist positive or negative associations between immeasurable characteristics and the veteran status. People with higher motivation and who are physically and mentally healthy may be more likely to serve in the military. We therefore argue that the estimated effects should be interpreted with this limitation in mind.

**VII. Conclusion**

In this paper, we developed simple models to account for the likelihood of labor market discrimination in the Korean labor market. We also tested the hypothesis descriptively that people who fulfilled compulsory military service has wage premium in the labor market has been tested using data from South Korea. The descriptive OLS analysis shows that a wage premium does not exist for those who have fulfilled military duty. We derive several implications. First, previous research has explained the labor market discrimination with two representative models such as taste-based discrimination
and statistical discrimination. Simple models have been presented to explain that exempted people may suffer from both taste-based and statistical discrimination, which can possibly lead to a reduction in one’s wage level in South Korea. We did not, however, find existence of any significant wage premium for those fulfilled military service.

South Korea is one of few nations adopted the system of compulsory military service. Thus, drafts males of ages between 19 and 31 required to serve in the armed forces. The government in South Korea tried to provide benefits to those who have service compulsory military service like veterans extra point system and incorporating employees’ military service experience into their work experience. Whether the veterans are discriminated or privileged is, however, still not proved empirically. Therefore, it is a useful exercise to test whether people who fulfilled compulsory military service have wage premium in the South Korean labor market using theoretical and statistical models.

This study has several limitations. The strict causal interpretation cannot be granted for the estimated result because of the endogeneity of the exemption status. We therefore argue that future studies should engage more in isolating the causal impact of the exemption on labor market discrimination in order to derive effective policy implications.

References


군 복무자와 군 면제자 간의 임금격차에 관한 연구:
수리적 모형과 기술적 분석을 중심으로

권남호·배광빈·손호성

본 연구의 목적은 한국 노동시장에서 군 복무자와 군 면제자 간에 임금격차가 존재할 수 있음을 이론적 모형을 통해 살펴보고 기술적 분석을 통해 이 모형을 통계적으로 검정을 하는 것이다. 우선 간단한 수학적 모형을 통해 기호 차별(taste-based discrimination)과 통계적 차별(statistical discrimination)로 인해 두 집단 간에 임금 격차가 발생할 수 있음을 살펴보았다. 그리고 한국노동패널 자료를 활용해 두 집단 간에 실제로 임금 차이 존재함을 기술적으로 살펴보았다. OLS 분석 결과 두 집단 간의 임금 격차가 통계적으로 유의미하게 추정되었다. 하지만 추정된 OLS 추정값은 실질적으로 유의미한 수준으로는 도출되지 않았다(약 1.3%p). 단 군 복무 여부 변수의 내생성을 통제하지 않은 상태에서 도출한 추정값이기 때문에 결과치를 인과적으로 해석할 수는 없다. 따라서 좀 더 유의미한 정책적 함의를 도출하기 위해 군 복무 여부가 노동시장 관련 결과변수 미치는 인과효과를 추정하기 위한 노력을 앞으로 할 필요성이 크다고 판단된다.

[주제어: 임금격차, 기호 차별, 통계적 차별]