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LIU, Yang
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RELATIVE WAGES AND JOB SATISFACTION OF MIGRANT WORKERS: AN ECONOMIC PERSPECTIVE USING DATA FROM JAPAN

Yang LIU*
Research fellow, Research Institute of Economy, Trade and Industry
Email: liu-yang@rieti.go.jp

ABSTRACT

Job satisfaction has been modeled as the utility obtained from comparing current jobs to alternatives in economic literature. However, little attention has been paid to migrant workers. Using two measurements of relative wages and sample selection models, this study provides empirical evidence that migrants' job satisfaction in host countries could be affected by their personal or average relative wages in home countries. Furthermore, contrary to previous results regarding native workers, the direct effects of education, a firm's size, and permanent employment contracts on migrants' job satisfaction are negative. This is explained by different employment alternatives outside the firm for migrants and native workers.

Keywords: relative wages, job satisfaction, migrants, level of education, firm size, permanently employed contract workers (*seishain*)
JEL classification: J28 J31 J6

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I. INTRODUCTION

Job satisfaction has received much attention in economics, psychology, and sociology. In economics, job satisfaction was found to affect labor motivities (Freeman 1978, Akerlof et al. 1988, Clark et al. 1998, Levy-Garbous et al. 2007) and productivity (Böckerman and Ilmakunnas 2012), and it was widely recognized as a good proxy for matching efficiency (Ferreira and Taylor, 2011; Barmby, et. al., 2012). Economic literatures consider that job satisfaction is determined by the individuals' comparison of their current status to outside alternatives (e.g. Lévy-Garboua and Montmarquette 2004, Green 2010). Although empirical evidence from many countries generally did not distinguish between natives and migrants, the two groups differ greatly in outside alternatives, particularly regarding migrants' job opportunities in their home countries. Since globalization has increased the number of global migrants, this study aims to contribute to the job satisfaction literature by focusing on migrant workers in Japan.

Job satisfaction captures an individual's well-being relative to outside job alternatives (Green, 2010). The level of current job satisfaction increased with better current job conditions, while decreased with better outside job alternatives. Green (2010) found that overall job satisfaction predicts job mobility better than job-related well-being, using British data. The latter

measures utility from work but “does not reflect evaluation and comparison with the utility derivable from some alternative state” (Green, 2010). Furthermore, Lévy-Garboua and Montmarquette (2004) modeled job satisfaction indexes by comparing pecuniary and non-pecuniary values between jobs and job alternatives, both currently and in the past. They consider that the job satisfaction is the judgment that the respondent would wish to repeat his past career if he now had to choose again, indicating how one’s experienced sequence of jobs compares with mentally experienced alternatives.

Migrants differ from natives in both past career of migration and future alternatives of working in home countries, which could cause sharp differences of job satisfaction between migrants and natives. In particular, their judgement of job satisfaction could include their comparison of their situation in host countries with what their job might have been if they had not migrated and with future opportunities in home countries. As a result, even for employees at the same firm, migrants' alternative opportunities, which are a key determinant of job satisfaction, differ greatly from native workers.

Wages, an important concern for workers, have attracted much interest in the job satisfaction literature. Clark (2008) includes the term of comparison income in an individual utility function, wherein the utility of a worker increases with wage, which relates to utility of

consumption, and the utility of the worker decreases with relative wage, which reflects worker's comparison current job with alternatives, (Clark 2008). Previous empirical work found that comparisons with people in similar occupations influence workers' satisfaction (Cappelli and Sherer, 1988). Workers' comparisons of local labor market wages (Clark and Oswald, 1996) or the daily duties of colleagues (Brown, et al., 2005) and families (Clark, 1996) also influence job satisfaction.

However, the role of relative wages in home countries is an unclear determinant of migrants' job satisfaction. This study examines this issue carefully, using two methods: 1) average incomes in home countries and 2) predicted individual-level wage from earning functions in his/her home country. These two methods have been used widely in previous studies. The first method is based on the idea of cell average, the average wage by region, gender, education, or other metric (Cappelli and Sherer, 1988; McBride, 2001; Ferrer-i-Carbonell, 2005; Brown, et al., 2008). The second one has been used as personal wage predicted by local labor market in a number of studies (Clark and Oswald, 1996; Sloane and Williams, 2000). Those calculations can "either be carried out within the dataset, or matched in from an external source" (Clark, 2008).

Furthermore, workers' expectations regarding the probability of these alternatives should be

considered because higher expectations on alternatives may increase the effect of alternatives on job satisfaction. In particular, workers may have greater expectations when they have a high level of education, experience in larger firms, or a permanent employment contract. These desirable skills, even though benefit the current job and thus have positive effects on job satisfaction, may increase the negative effects of outside alternative and thus simultaneously have negative effects on job satisfaction. Especially, those negative effects could be large for workers with higher labor mobility and more outside opportunities, such as migrant workers in this study. As a result, this study examines the effects of education, firm size, and permanent employment contracts and compares them with previous studies about native workers.

Most migrants living in Japan, such as workers born in China, Korea, and Taiwan, have a similar culture and language as the Japanese. This study chose migrants who obtained a post-secondary education (from 2 years of college through a Ph.D.) in the host country of Japan. Therefore, compared with migrant workers who were directly hired from their home countries, jobs found by migrants who received post-secondary education in Japan are similar to those found by native workers. This group of migrants generally shares working conditions with native workers and are more familiar with Japanese traditions and lifestyles than other migrants. The main difference between migrant workers in this study and native Japanese workers examined in

previous studies could be the outside labor market.

Previous Japanese studies on job satisfaction, which largely focused on native Japanese workers, found that job satisfaction increases with higher education (Kume, Tsuru, and Toda, 2017; Nozaki, 2010; Sano and Ohtake, 2007; Saito, 2016; Ohta, 2011), with being a permanent contract worker (*seishain* in Japanese) (Kume, Tsuru, and Toda, 2017), or when working in larger firms (Sano and Ohtake, 2007; Ohta 2011; Ishikawa, 1994; Ohashi, 2005). Japanese natives generally have low labor mobility, which results in low expectations for outside alternatives. This may not be true, however, for migrants who have higher labor mobility, more alternatives, and greater opportunity for other employment. This will be examined further in this study.

The *negative* effects of education and firm size on job satisfaction have been observed for native workers in many countries other than Japan (e.g., the negative effects of education in Brown and McIntosh, 1998; Clark and Oswald, 1996; Clark, 1997; Gazîoğlu and Tansel, 2006; Fabra and Camisón, 2009 and the negative effects of firm size in Idson, 1990; Clark, et.al., 1996; Lydon and Chevalier, 2002; García-Serrano, 2011; and Tansel and Gazîoğlu, 2014). Our study, in contrast, notes the *positive* effects of education and firm size on the job satisfaction of native Japanese workers. In Japan, though, these effects may be *negative* for migrant workers, even

they have the same working conditions and similar backgrounds as native workers, because of job opportunities in their home countries. Moreover, temporary jobs can be either “dead end” jobs with poor prospects or stepping stones to permanent employment in good jobs (Booth, et. al, 2002). Job opportunities in home countries are more likely the latter than the former, which increases migrants' job satisfaction. This study is organized as follows: Section 2 constructs a model, Section 3 describes the data, Section 4 provides estimations and results, and Section 5 offers a conclusion.

II. THE MODEL

Similar to Lévy-Garboua and Montmarquette (2004), for simplicity, our theoretical model assumes that individuals compare their own situation with a single alternative.

The satisfaction judgment is as follows:

$$J^* = \frac{WV}{E(W^*V^*)} \tag{1}$$

where W (W*) is wage of the current job (alternative), V(V*) is the job's non-pecuniary benefit (alternative), which is measured by market price, and $W > 0$, $V > 0$, $W^* > 0, V^* > 0$. WV

measures the total value of the current job, and $E(W^*V^*)$ is the expected value of the alternative.

Job satisfaction is a variable that takes a binary value of 0 and 1, in which J = 1 if satisfied, and J = 0 if not satisfied. The worker is satisfied with the current job if the value of the job exceeds that of the alternative, and he/she is unsatisfied if the value of the job is lower than that of the alternative, as follows:

$$\text{J} = 1 \text{ if } J^* > 1$$

$$\text{J} = 0 \text{ if } 0 < J^* < 1 \tag{2}$$

Assume $e(W^*V^*) = W^*V^*P$, where P is an individual's *expected* probability to obtain the alternative. Equation (2) becomes as follows:

$$J^* = \frac{WV}{W^*V^*P} \tag{3}$$

It can be written in a linear form, as follows:

$$\ln J^* = (lnW - lnW^*) + (lnV - lnV^*) - lnP \quad (4)$$

In the above equation, non-pecuniary value includes work and life balance, skill training, job security, and non-pecuniary welfare provided by firms. It can be determined by the frequency of overtime work, as well as education level, employment contract type, and firm size (Duncan, 1976), as follows:

$$\mathrm{V} = \mathrm{V}(\mathrm{h}, \mathrm{e}, \mathrm{s}, \mathrm{c}) \quad (5)$$

where h is working hours, e is education, s is firm size, and c is the employment contract. It is obvious that $\frac{\partial \mathrm{V}}{\partial \mathrm{h}} < 0$. The effects of education, firm size, and the employment contract will be discussed later.

When a worker looks for jobs in the labor market, the probability that the worker obtains a job interview is higher if more job vacancies exist (Petrongolo and Pissarides, 2001). Thus, a worker who looks for a job in a labor market with more job vacancies has a better probability of finding one. For instance, a migrant worker who looks for work in both his/her

home country and the host country has a better opportunity of finding a job compared with native workers who generally only look for jobs in the local labor market. This study assumes that firms consider job applicants carefully. That is, when a firm receives many applications for a position, it offers the job to the best candidate (Blanchard and Diamond, 1994). In this study, according to the economic theory of signaling (Spence, 1973), firms cannot perfectly assess a job seeker's ability but can interpret his/her qualifications and signals, such as education level. Similarly, a permanent employment contract and experience working at a large firm may be positive signals about a job seeker's ability.

As a result, the expected probability of obtaining an alternative is assumed to be determined as follows:

$$p = e^{a\delta(e,s,c)} \quad (6)$$

where a is the scale of job vacancies (assumed to be a constant for workers in the same labor market), p is the possibility of obtaining the alternative ($P = p\%$), with $a > 0, e > 0, s > 0, c > 0,$ and $0 < p < 100.$

Substituting equations (5) and (6) into (4) leads to the following equation:

$$\ln J^* = (lnW - lnW^*) + [lnV(\mathrm{h}, \mathrm{e}, \mathrm{s}, \mathrm{c}) - lnV^*] - \mathrm{a}\delta(\mathrm{e}, \mathrm{s}, \mathrm{c})/100 \quad (7)$$

This indicates that job satisfaction increases with wages, W, and decreases with relative wages, W*, and with working hours, h. Moreover, for migrants, relative wages may include wages from both the home and host countries. Furthermore, in the model, education, firm size, and employment contract type affect both *V* and *P*, and the total effect of each is ambiguous. Because migrant workers' labor markets include both the home and host countries, the scale of job vacancies faced by workers, "a," could be larger than for native workers, exacerbating the negative effects of education, firm size, and permanent employment contracts. Details of the predicted effects of relative wages, education, firm size, and employment contract type will be discussed subsequently.

2.1 Relative Wages

Relative wages have been examined extensively in the literature, without distinguishing between natives and migrants. However, unlike different native workers, migrants have the option of working in their home countries. This study first examines the role of relative wages in

home countries, which has not been clarified in previous studies.

According to the theoretical model, migrants' job satisfaction is expected to be lower if their relative wages are higher. This study measures migrants' relative wages in home countries in two ways. The first is the average wage in home countries. The lower the average wage in a home country, the lower the relative wages for migrants and thus the higher level of job satisfaction when they migrate. The second measurement is a more careful examination based on the idea of earnings. Migrants' earnings in their home countries are predicted by a home country earning equation, which is obtained using individual data from these countries. Host countries' relative wages average worker groups of the same age, gender, and education.

2.2 Education

Because job satisfaction has both positive and negative effects, education's effects on it are ambiguous. On the one hand, higher education may lead to promotion opportunities, more challenging tasks, greater influence at work, and more freedom to select jobs within a firm, indicated by $\frac{\partial \mathrm{V}}{\partial \mathrm{e}} > 0$ in the theoretical model. Because $\frac{\partial \mathrm{j}}{\partial \mathrm{V}} > 0$, education could contribute to job satisfaction by increasing the non-pecuniary value of a current job.

However, higher education could increase the likelihood of an outside job opportunity,

$\frac{\partial p}{\partial e} > 0$, which in turn decreases job satisfaction, as $\frac{\partial j}{\partial p} < 0$. Because education is a signal of ability and productivity in the labor market (Spence, 1973), it helps workers find new jobs.

Education's total effect on job satisfaction depends on which is larger, the positive effect of a job's non-pecuniary benefit, or the negative effect of outside job opportunities.

Even in the same country, because of their different impact on outside job opportunities, education's effect on job satisfaction probably differs between natives and migrants. Previous studies about native Japanese workers showed that education enhanced job satisfaction. This effect, though, could be the opposite for migrants, because they also can find employment in their home countries. Therefore, it is likely that the negative effect of the alternative employment exceeds the positive effect of a job's non-pecuniary value, causing education to have a negative effect on job satisfaction.

2.3 A Firm's Size

A firm's size can have different effects on job satisfaction. First, larger firms may have a higher reputation and better social credibility and may provide more non-pecuniary benefits to workers, thus increasing the non-pecuniary value of the current job, *V*, and job satisfaction. However, the added value of working in a large firm also may help a worker find a new job, thus

increasing the likelihood of outside job opportunities.

The positive effect of working for a large firm is dissimilar for native and migrant workers, because the latter have outside job opportunities both in the host country and in their home countries. As a result, the positive implications of working for a large firm may be less important for migrants, or even negative. This study will consider this issue.

2.4 Permanent or Fixed-Term Contracts

Like the effect of firm size, migrants may value a permanent contract because it provides better job security, more on the job training, and greater opportunity for promotion, which contribute to their job satisfaction. On the other hand, a permanent contract may signal a higher level of ability, which is valued in the outside labor market. Also, more job training for permanent contract workers increases their chances of finding a new job, which leads to higher labor market expectations and reduces current job satisfaction (especially for migrants with high mobility and more outside job opportunities). Permanent employment contracts, therefore, can decrease job satisfaction, potentially exceeding the benefits of a current position.

Accordingly, the model and discussions on the effects of relative wages, education, firm

size, and employment contracts lead to the following two hypotheses.

Hypothesis 1: Relative wages in home countries negatively affect migrants' job satisfaction.

Hypothesis 2: Education, firm size, and permanent employment contracts may decrease migrants' job satisfaction, even while having an opposite effect on native workers.

This study tests these two hypotheses, using data from migrant workers in Japan, in the subsequent sections.

III. DATA

The subjects in this study are migrant workers, born in foreign countries, who share similar working conditions and local labor markets with native workers. Migrant workers were included if they received post-secondary education in Japanese colleges or universities and were employed full time in Japan during the survey period. The study's data largely derive from a 2008 national survey on firms and foreign employees in Japan, conducted by Japan Institute for Labour Policy and Training. To the best of our knowledge, this survey provides the most updated

information about both firms and foreign employees in Japan. Questionnaires were sent to selected firms in Japan with over 300 total employees and foreign employees. The Teikoku Databank provided the list of firms, except for the agriculture and forestry industries[2] (JILPT, 2009, 3). The sample included foreign employees who received post-secondary education in Japan (including universities, 2 year (short) colleges, and technical colleges). Employees who immigrated directly to Japan directly for work were excluded. The sample included both permanent contract workers (*seishain* in Japanese) and fixed-term contract workers (*keiyaku-shain* in Japanese). Part-time workers were excluded. In total, 3,018 firms responded to the survey (29.2% of the targeted population), and 902 responses from foreign employees were collected.

The top three foreign countries represented were mainland China (77.4% of foreign employees), Korea (7.4%), and Taiwan (4.1%). These percentages are consistent with those for newly hired foreign graduates in Japan. In 2008, among foreigners recently hired at Japanese firms who received post-secondary education in Japan, 69.3% were from mainland China, 12.7% from Korea, and 2.3% from Taiwan (MOJ, 2009[3]). The original birthplace of foreign employees

[2] The following industries were excluded from the survey: agriculture and forestry; fisheries; education; compound services; political, business, and cultural organizations; religious institutions; foreign public services; and government services.

[3] National statistics of total foreign employees who received post-secondary education in Japan is not

was not available in the data.

Among the variables, job satisfaction was measured on four levels, based on the question: “All in all, how satisfied would you say you are with you job?” The answers were “Not at all” (job satisfaction = 1), not too satisfied (job satisfaction = 2), somewhat satisfied (job satisfaction = 3), and very satisfied (job satisfaction = 4). Wages and total income before taxes in the previous year were surveyed, using 12 categories. The study also used two measurements of working hours: a worker's frequency of overtime work and a firm's effort to achieve a work/life balance for its employees. The 2008 relative wages in Japan consisted of 54 cell averages of wages in a group of the same age, gender, and education level, obtained from an official source, the Basic Survey on Wage Structure (MHLW, 2009).

Relative wages in home countries were measured two ways. The first was the average wage gap between Japan and the host country, using data from the World Bank (World Bank Open Data) and Taiwan (National Statistics, Republic of China). A second method, with a more detailed estimation, was obtained from personal, predicted wages in home countries, using a Mincer earning-function estimation (Clark, 1996). This method requires a national survey in home countries, conducted the same year as this migrant survey in Japan. Chinese was chosen

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available.

because its workers represent the largest share of foreign employees in Japan, and the country's national 2008 China General Social Survey (CGSS) was available. In the CGSS, the sample selection process and the questionnaire were designed by academic institutions, and the data were collected in face-to-face interviews. Earnings in China were estimated from the data by a standard Mincer earnings function, including annual wages, education, and tenure. This information predicted expected wages for Chinese workers in Japan if they had not migrated.

Summary statistics are reported in Tables 1.1–1.3.

IV. ESTIMATION AND RESULTS

The reduced form of the theoretical model is obtained as follows:

$$\mathrm{j} = \beta_w w + \beta_{w^*} w^* + \beta_h h + \beta_e e + \beta_s s + \beta_c c + control.var. + constant + \varepsilon,$$

where *j* is a job satisfaction index, *w* is current wages, and $w^*$is relative wages. It is predicted that $\beta_w > 0,\ \beta_{w^*} < 0,\ and\ \beta_h < 0$, which will be tested in the empirical work. Further, $\beta_e, \beta_s,$ and β_c are determined by their effects on the non-pecuniary value of a current job, which

are usually positive, and their negative effects on job satisfaction, by increasing the expectations for outside job opportunities. Previous studies found that for native workers in Japan, $\beta_e > 0, \beta_s > 0, \text{and } \beta_c > 0$. The empirical work examined if negative effects on job satisfaction also are observed for migrant workers, who have higher expectations regarding outside opportunities.

The control variables are age; gender; marital status; language proficiency; time living and working in Japan; time in the current job; employee rank; job change experiences; the nationality of one's manager; merit-based pay; age when promoted; firms' human resource management practices for foreigners; firm's overseas activities, industry, and job type; and a firm's nationality. Seventeen job-description dummies were used: management, general affairs (*soumu*), secretary, human resources, public relations, sales, trading, development of products and services, finance, research and development, research and consulting, production, system development and design, translation, design, reporting and program production, medicine and health, law and accounting, education and training, and other. The non-pecuniary benefit of alternative jobs, V^*, is assumed to be a constant and is included in the constant term because it is unknown to workers in their current firm. Although workers may have general wage information about alternative jobs, little information is available about non-pecuniary benefits of outside jobs, such as employee welfare and job training.

An ordered probit model is applied for estimation. Model 1 reports the estimated result of an average wage gap, using data of migrant workers who were born in China, Korea, and Taiwan, in total comprising 90% of sample migrant workers. Model 2 reports the estimated results of individuals' wages in their home countries, focusing on migrant workers from China, who comprised 77% of sample migrant workers in Japan.

Consistent with the theory, wages have a significantly positive effect on job satisfaction. In terms of working hours, the results estimate both worker- and firm-level variables, the negative effects of migrants' overtime work, and the positive effects of firms that attempt a work/life balance for employees. As suggested by the theoretical model, more overtime work reduces the non-pecuniary value of a job, leading to a lower level of job satisfaction. Even though working long hours in Japanese institutions sometimes heightens an employee's reputation and provides promotion opportunities, more overtime definitely reduces migrants' job satisfaction.

A particular interest of this study is migrants' relative wages, as well as the possible negative effects of education, firm size, and permanent employment contracts, which are discussed in Sections 4.1 and 4.2.

4.1 The Effects of Wages

Table 2, which indexes migrants' relative wages, shows that the average, estimated wage gap between host and home countries, is significantly negative. This indicates that if other variables are controlled, job satisfaction levels could be higher for migrants coming from lower-income countries. Furthermore, using matched migrant data and local survey data from China, Table 3 shows that the second index for migrants' relative wages, an individual's job-related wage in his/her home country, predicted by the estimated earning-function, also is significantly negative. This indicates that migrants who can earn higher job-related wages in their home countries could have a lower level of job satisfaction in host countries.

The fact that migrants' job satisfaction could be affected by job-related wage levels in their home countries is a new addition to the job satisfaction literature. For native workers, job-related wages in earlier studies' theoretical models usually related only to nearby employment. This study is the first to provide findings related to job-related wages for migrants.

In addition, because lower job satisfaction causes workers to seek new positions (Lévy-Garboua, et. al., 2007), the results explain return migrations and wage gaps. A smaller wage gap between host and home countries reduces the utility of host countries' jobs, causing migrants to quit jobs in host countries and return home for employment.

Modest wage distinctions between home and host countries affect the job satisfaction of migrants to a lesser degree. Migrants more often compare themselves with people in their home countries than with workers in host countries.

4.2 The Effects of Education, Firm Size, and Employment Contracts

In this study's sample, job satisfaction is significantly *lower* for migrants with a post-secondary education or higher, who work in large firms, or who have a permanent employment contract (*seishain*). These effects are the opposite of those found for native Japanese workers, whose job satisfaction was *higher* with more years of education, work in larger firms, or being hired as permanent employees (*seishain*) (Ohta, 2013; Kume, et. al., 2017). One explanation of this difference could be migrants' higher expectations about outside job opportunities.

Education. The impact of a post-secondary education, from 2 years of college, to a Ph.D., is significant. Controlling for wages and other factors, in Japan, the job satisfaction of migrant workers with a post-secondary education may be lower. According to the model, education is expected to increase employment opportunities and to contribute to a job's non-pecuniary value.

If these are lacking, the total effect of education on migrants' job satisfaction is negative.

This result is the opposite of previous findings for native Japanese workers, which found that job satisfaction increases with higher education levels. For instance, Ohta (2013) found that in Japan, job satisfaction is higher for workers with a graduate-school education, comparing with those with an undergraduate degree or less. Kume, Tsuru, and Toda (2017) similarly found that Japanese workers' job satisfaction increases significantly with years of education. The difference could be that migrants, unlike natives, have job opportunities in their home countries.

These distinctions between natives and migrants are especially large in Japan. In Japanese firms, gaps in income and career opportunities among employees with different levels of secondary education are small compared with those in migrants' principal home countries of China, Korea, and Taiwan. Because of a lifetime employment tradition and low labor mobility in Japan, instead of relying on post-secondary education, Japanese firms seem to prefer training workers on the job. Conversely, long years of post-secondary education, culminating in a Ph.D. or a master's degree, is highly valued in migrants' home countries of China, Korea, and Taiwan. As a result, unlike native Japanese workers, education's effect on expected opportunities outside a firm may be higher for migrants. This could lead to lower job satisfaction for migrants with higher secondary education levels who work in Japan.

In previous studies, the negative effect of education on job satisfaction was explained by the link between higher job expectations and a higher level of education (Clark, 1996; Fabra and Camisón, 2009). This concept does not, however, sufficiently explain why the effect of education on job satisfaction differs between migrant and native workers in Japan. Therefore, this study also posits education's ability to enhance a job's non-pecuniary value, which coexists with the negative effect of education for highly educated migrant workers.

The Effect of a Firm's Size. For the sample's large- and medium-size firms (300 employees and over), migrants' job satisfaction decreases with a firm's size. This supports the study's expectation that migrants who work in larger firms may have a higher expectation regarding outside opportunities.

By contrast, Ohta (2013) demonstrated that for firms of three different sizes (300–499, 500–999, and over 1,000 workers), Japanese workers' job satisfaction correlated directly with the size of the firm.

This distinction between migrants and natives could be caused different outside opportunities. Even if all firms of a certain size provided sufficient non-pecuniary benefits, working at very well-known firms could be valued by the outside labor market and thus increase

migrants' expectations regarding employment alternatives, including in the migrant's home country.

A negative correlation between a firm's size and workers' job satisfaction was found in studies of native workers in Spain (García-Serrano, 2011) and the UK (Idson, 1990). However, these authors' explanations that larger firms are inflexible and have poor relative work environments may not apply to Japanese firms. In fact, the work environment may be better at larger Japanese firms, because they provide numerous career paths for their employees and help them develop their skills in various job functions. Thus, in Japan at least, a larger firm could provide additional non-pecuniary benefits, and the negative effect of firm size on migrants' job satisfaction could be caused by their expectations regarding outside job opportunities.

The Effects of Employment Contracts. The job satisfaction of a permanent contract migrant (*seishain*) could be lower than that of a fixed-term contract migrant (*keiyako-shain*). Japanese firms' tradition of long-term employment, job training, and career advancement in the firm generally improves job satisfaction and job security. Although this benefits permanent contract workers and natives, migrant workers' job satisfaction may be lowered by the perception of outside alternatives.

Comparing with fixed-term workers, workers with permanent employment contracts can take on new jobs more easily, because they usually receive better job training in their current firm and because obtaining a permanent contract is a sign of higher ability. This improves their chances of alternative employment, which also could decrease their relative job satisfaction, particularly when it exceeds the positive effects of a current position's non-pecuniary value.

These results differ from studies about native Japanese workers, which found that job satisfaction is higher for *seishain* than *keiyako-shain* workers, possibly because of the opportunity for employment in their home countries. This difference is exacerbated in Japan, because *seishain* workers in Japanese firms obtain few ancillary job benefits. By contrast, Japanese firms provide *seishain* workers with job training, adding to their human capital. Loyalty to firms is highly valued in Japan, and changing jobs can harm workers' reputations. *Seishain* workers can develop their careers in the same firm. For migrants living in Japan, though, changing jobs is an accepted practice in their home countries. As a result, for Japanese natives, the negative effect of being a permanent contract worker may be outweighed by its positive effect on job satisfaction. For migrants, though, the negative effect of being a *seishain* could exceed its job satisfaction benefits.

4.3 The Effects of Control Variables

Among control variables, a migrant's tenure, including the period in the current firm, and total working period in Japan, have significantly negative consequences. This result concurs with Saito (2016), who used a sample of Japanese native workers and showed the tenure coefficient (without explaining the reason). A similar result was found by Barmby (2012), who showed, using British data, that tenure has a negative effect on job satisfaction. Because job satisfaction is used as a proxy for match quality, the study explains the result using a theoretical match quality model, in which "the labor market in which workers accumulate specific human capital at the firm they work at and how this accumulation affects the way they react to outside job opportunities." In our study, migrants with long tenure may also suffer from lower match quality, similar to native workers.

Finally, having foreign managers significantly contributes to migrants' job satisfaction. Other control variables were not seen as notably significant.

V. ROBUSTNESS CHECK: THE RESULT OF SAMPLE SELECTION MODELS

Actions were taken to allay the concern that migrants were not randomly selected. For a robustness check, the study estimates a maximum-likelihood ordered probit model with sample

selection (De Luca and Perotti, 2011), concentrating on Chinese migrants, the largest migrant group in Japan. Data are constructed by matching the Japanese migrant data with individual data of CGSS 2008 from China.

The results are reported in Table 4. The likelihood-ratio test indicates that we *cannot* reject the null hypothesis that the errors for outcome and selection are uncorrelated, indicating that standard ordered probit techniques applied to the outcome equation yield consistent results. Indeed, as shown in Table 2, major results are consistent with models in Section 4.

VI. CONCLUSIONS

Job satisfaction is an important factor that affects workers' behavior, including labor mobility. In the economic literature, job satisfaction has been measured as workers' comparisons of their current jobs with outside alternatives. This study aims to contribute to the literature by focusing on migrant workers, whose outside alternatives differ from those of native workers. The data used are samples of migrant workers and their employers in Japan, as well as national survey data from the home country.

First, the study tested the economic theory of job satisfaction and provided new empirical evidence about the role of relative wages, using the wages in migrants' home countries.

Second, it found that job satisfaction may be influenced by education, firm size, and employment contracts and may differ greatly between migrant and native workers. These three criteria negatively impacted migrants' job satisfaction, opposite to their effects on native workers. One reason for this result could be alternative employment opportunities for migrants in their home countries. Empirical work, therefore, should distinguish between these two groups of workers.

Regarding policy implications, in recent years, many countries have tried to attract and retain highly skilled foreign laborers. Job satisfaction, which is a key determinant for labor mobility, may be lower for migrants who have a higher level of education and who are from relatively high-income countries. As a result, more efforts are necessary to increase the job satisfaction of these migrant groups.

TABLE 1.1

Variable	Obs	Mean	Std. Dev.	Min	Max
job satisfaction	793	3.21	0.69	1	4
wage	785	2.52	1.66	1	9
relative wage in home countries: country average (annual, dollars)	802	5.44	6.12	3.1	22.8
relative wage in host country (monthly, thousand yen)	791	295.43	74.26	191.9	531.7
overtime work frequency	801	2.13	0.74	1	3
education	734	2.77	1.01	2	5
firm size	736	3.25	0.82	1	4
permanent contract	799	0.87	0.33	0	1
past stay in Japan	801	5.06	0.68	1	6
working period in Japan	792	1.80	1.64	0	5
working period in the current firm	799	1.58	1.57	0	5
language proficiency	789	1.67	0.59	1	4
marriage	796	0.50	0.50	0	1
marry Japanese	802	0.06	0.24	0	1
employee rank	797	1.14	0.48	1	4
age	799	31.19	5.79	23	55
male	801	0.55	0.50	0	1
job change	775	0.14	0.35	0	1
have foreign manager	734	0.44	0.50	0	1
work and life balance	731	2.94	0.68	1	4
long- term employment	734	3.68	0.59	1	4
merit- based pay	735	3.19	0.60	1	4
promotion selection at early age	719	2.65	0.74	1	4
oversea activities	792	0.89	0.32	0	1
foreign firm	734	0.03	0.16	0	1

Summary Statistics of Migrants from China, Korea, and Taiwan

TABLE 1.2

Variable	Obs	Mean	Std. Dev.	Min	Max
job satisfaction	691	3.23	0.69	1	4
wage	682	2.46	1.57	1	9
relative wage in home country: personal level (annual, thousand yen)	693	59.30	5.28	12.03	63.02
relative wage in host country (monthly, thousand yen)	692	294.44	72.54	211	531.7
overtime work frequency	697	2.13	0.73	1	3
education	642	2.77	1.01	2	5
firm size	644	3.24	0.82	1	4
permanent contract	695	0.88	0.32	0	1
past stay in Japan	697	5.09	0.63	2	6
working period in Japan	691	1.79	1.62	0	5
working period in the current firm	695	1.58	1.56	0	5
language proficiency	687	1.69	0.58	1	4
marriage	692	0.53	0.50	0	1
marry Japanese	698	0.06	0.23	0	1
employee rank	693	1.14	0.48	1	4
age	695	31.12	5.73	23	55
male	697	0.56	0.50	0	1
job change	673	0.13	0.34	0	1
have foreign manager	642	0.44	0.50	0	1
work and life balance	639	2.93	0.68	1	4
long- term employment	642	3.67	0.60	1	4
merit- based pay	643	3.18	0.60	1	4
promotion selection at early age	629	2.66	0.72	1	4
oversea activities	691	0.90	0.30	0	1
foreign firm	643	0.02	0.15	0	1

Summary Statistics of Migrants from China

TABLE 1.3

Variable	Obs	Mean	Std. Dev.	Min	Max
age	6,000	43.21	14.09	18	98
marriage	6,000	0.83	0.38	0	1
edu_graduate	6,000	0.00	0.07	0	1
edu_undergraduate	6,000	0.06	0.24	0	1
edu_high_school	6,000	0.31	0.46	0	1

Summary of CGSS Statistics

TABLE 2

	(1)	(2)	(3)	(4)
Model variables				
wage	0.114	0.1144	0.1088	0.1151
	[0.05]**	[0.05]**	[0.05]**	[0.05]**
relative wage in home countries:	-0.0519	-0.0506	-0.0514	-0.0497
country average	[0.02]***	[0.02]***	[0.02]***	[0.02]***
relative wage in host country	-0.0017	-0.0012	-0.0016	-0.0011
	[0.00]	[0.00]	[0.00]	[0.00]
working hours:	-0.1009	-0.0977	-0.0751	-0.1019
overtime work frequency	[0.07]	[0.07]	[0.07]	[0.07]
working hours:	0.2115	0.2037	0.2184	0.216
firm's work and life balance	[0.08]**	[0.08]**	[0.08]***	[0.08]***
education	-0.2486	-0.2723	-0.2281	-0.2339
	[0.10]**	[0.10]***	[0.10]**	[0.10]**
firm size	-0.1953	-0.1786	-0.2027	-0.1823
	[0.07]***	[0.07]***	[0.07]***	[0.06]***
permanent contract	-0.3347	-0.3119	-0.3458	-0.3049
	[0.18]*	[0.17]*	[0.17]**	[0.17]*
Control variables: worker				
past stay in Japan	0.1504	0.1244	0.144	0.1369
	[0.10]	[0.10]	[0.10]	[0.10]
working period in Japan	0.0297	0.0325	0.0162	0.0167
	[0.11]	[0.11]	[0.10]	[0.11]
Working period in the current firm	-0.2104	-0.2094	-0.2118	-0.1894
	[0.10]**	[0.10]**	[0.10]**	[0.10]*
language proficiency	-0.0767	-0.0698	-0.0824	-0.0605
	[0.09]	[0.09]	[0.09]	[0.09]
marriage	-0.1118	-0.1162	-0.1065	-0.0885
	[0.12]	[0.12]	[0.12]	[0.12]
marry Japanese	0.1817	0.2217	0.2447	0.2111
	[0.24]	[0.24]	[0.23]	[0.24]
employee rank	0.1435	0.1533	0.1409	0.1412
	[0.12]	[0.12]	[0.12]	[0.12]
age	0.0104	0.0044	0.0112	0.002
	[0.03]	[0.03]	[0.03]	[0.02]
male	-0.015	-0.028	-0.038	-0.0189
	[0.15]	[0.14]	[0.14]	[0.14]
job change	-0.2182	-0.2007	-0.1989	-0.189
	[0.21]	[0.21]	[0.20]	[0.20]
job type dummies	Yes	Yes	No	Yes

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Control variables: firm				
have foreign manager	0.5362	0.5529	0.5004	0.5012
	[0.22]**	[0.21]***	[0.21]**	[0.21]**
long- term employment	0.1812	0.165	0.1515	0.1731
	[0.10]*	[0.09]*	[0.10]	[0.10]*
merit- based pay	0.0211	0.0039	0.0032	-0.0253
	[0.10]	[0.10]	[0.10]	[0.09]
promotion selection at early age	-0.0904	-0.0842	-0.0822	-0.0903
	[0.07]	[0.07]	[0.07]	[0.07]
oversea activities	-0.1859	-0.1344	-0.1975	0.0279
	[0.20]	[0.20]	[0.20]	[0.16]
foreign firm	0.2487	0.2989	0.1975	0.1409
	[0.35]	[0.34]	[0.34]	[0.33]
industry dummies	Yes	Yes	Yes	No
HRM dummies (foreigner)	Yes	No	Yes	Yes
country dummies	Yes	Yes	Yes	Yes
cut1	-2.5585	-2.7529	-2.3153	-2.9335
	[1.02]**	[0.99]***	[0.97]**	[0.85]***
cut2	-1.4084	-1.601	-1.1831	-1.8109
	[1.02]	[0.99]	[0.96]	[0.83]**
cut3	0.2844	0.081	0.4901	-0.1499
	[1.01]	[0.98]	[0.96]	[0.83]
Log likelihood	-578.738	-582.11	-586.988	-588.38
N	623	624	625	623

Estimation Results: Average Relative Wages in Home Count

* Significant at the 10% level; ** significant at the 5% level; *** significant at the 1% level

TABLE 3

	(1)	(2)	(3)	(4)
Model variables				
wage	0.1278	0.1283	0.1198	0.1236
	[0.06]**	[0.06]**	[0.06]**	[0.06]**
relative wage in home country:	-0.0227	-0.0218	-0.0202	-0.0119
worker level	[0.01]*	[0.01]*	[0.01]*	[0.01]
relative wage in host country	-0.0011	-0.001	-0.0012	-0.0012
	[0.00]	[0.00]	[0.00]	[0.00]
working hours:	-0.1308	-0.1334	-0.1013	-0.1163
overtime work frequency	[0.08]*	[0.08]*	[0.08]	[0.08]
working hours:	0.2812	0.2689	0.2727	0.258
firm's work and life balance	[0.09]***	[0.09]***	[0.09]***	[0.09]***
education	-0.2714	-0.2902	-0.2227	-0.2572
	[0.11]**	[0.11]***	[0.11]**	[0.11]**
firm size	-0.1619	-0.1553	-0.1576	-0.1249
	[0.07]**	[0.07]**	[0.07]**	[0.07]*
permanent contract	-0.3443	-0.3465	-0.3273	-0.282
	[0.19]*	[0.19]*	[0.19]*	[0.19]
Control variables: worker				
past stay in Japan	0.1884	0.1623	0.1765	0.1551
	[0.11]*	[0.11]	[0.11]	[0.11]
working period in Japan	-0.0016	0.0084	-0.0172	-0.0084
	[0.12]	[0.12]	[0.11]	[0.12]
Working period in the current firm	-0.2391	-0.2405	-0.2326	-0.2082
	[0.12]**	[0.12]**	[0.11]**	[0.12]*
language proficiency	-0.0892	-0.0738	-0.0939	-0.0756
	[0.10]	[0.09]	[0.09]	[0.09]
marriage	-0.1175	-0.1179	-0.1368	-0.1031
	[0.13]	[0.12]	[0.12]	[0.12]
marry Japanese	0.1832	0.2087	0.2599	0.2122
	[0.25]	[0.25]	[0.25]	[0.25]
employee rank	0.0848	0.0975	0.0869	0.1046
	[0.13]	[0.13]	[0.13]	[0.13]
age	0.0169	0.0135	0.0189	0.0137
	[0.03]	[0.03]	[0.03]	[0.03]
male	-0.0051	0.008	-0.034	0.0097
	[0.16]	[0.16]	[0.15]	[0.15]
job change	-0.3216	-0.3234	-0.2639	-0.2479
	[0.24]	[0.23]	[0.23]	[0.23]
job type dummies	Yes	Yes	No	Yes

Control variables: firm				
have foreign manager	0.6217	0.6341	0.5125	0.5809
	[0.23]***	[0.23]***	[0.23]**	[0.22]***
long- term employment	0.1933	0.1695	0.1597	0.1847
	[0.11]*	[0.10]*	[0.11]	[0.11]*
merit- based pay	0.0394	0.0277	0.0111	-0.0309
	[0.11]	[0.10]	[0.10]	[0.10]
promotion selection at early age	-0.1	-0.0903	-0.0883	-0.119
	[0.08]	[0.08]	[0.08]	[0.08]
oversea activities	-0.2831	-0.2472	-0.249	-0.1342
	[0.23]	[0.22]	[0.22]	[0.19]
foreign firm	0.4413	0.5236	0.2813	0.4275
	[0.43]	[0.41]	[0.41]	[0.40]
industry dummies	Yes	Yes	Yes	No
HRM dummies (foreigner)	Yes	No	Yes	Yes
cut1	-3.1711	-3.3414	-2.7305	-3.0574
	[1.35]**	[1.31]**	[1.27]**	[1.12]***
cut2	-2.0788	-2.2486	-1.6622	-1.9939
	[1.34]	[1.30]*	[1.26]	[1.11]*
cut3	-0.3588	-0.5369	0.025	-0.3191
	[1.34]	[1.30]	[1.26]	[1.11]
Log likelihood	-499.975	-502.216	-510.428	-511.275
N	547	548	549	547

Estimation Results: Personal, Predicted, Relative Wages in the Home Country

* Significant at the 10% level; ** significant at the 5% level; *** significant at the 1% level

TABLE 4

	(1)	(2)	(3)	(4)
Model variables				
wage	0.1282	0.1293	0.1183	0.1236
	[0.06]**	[0.06]**	[0.06]**	[0.06]**
relative wage in home countries:	-0.0272	-0.0269	-0.0269	-0.0167
worker level	[0.02]*	[0.02]*	[0.02]*	[0.01]
working hours:	-0.1303	-0.1329	-0.1002	-0.1151
overtime work frequency	[0.08]*	[0.08]*	[0.08]	[0.08]
working hours:	0.2884	0.2783	0.2769	0.2655
firm's work and life balance	[0.09]***	[0.09]***	[0.09]***	[0.08]***
education	-0.2766	-0.2921	-0.225	-0.2625
	[0.11]**	[0.11]***	[0.11]**	[0.11]**
firm size	-0.1681	-0.163	-0.1624	-0.1288
	[0.07]**	[0.07]**	[0.07]**	[0.07]*
permanent contract	-0.3442	-0.3479	-0.3231	-0.2801
	[0.19]*	[0.19]*	[0.19]*	[0.18]
Control variables: worker				
past stay in Japan	0.1759	0.1532	0.1712	0.1468
	[0.12]	[0.11]	[0.11]	[0.11]
working period in Japan	-0.0103	0.0021	-0.0261	-0.0165
	[0.12]	[0.12]	[0.11]	[0.12]
Working period in the current firm	-0.2341	-0.2378	-0.2277	-0.205
	[0.12]**	[0.12]**	[0.11]**	[0.11]*
language proficiency	-0.089	-0.0751	-0.0925	-0.0782
	[0.10]	[0.09]	[0.09]	[0.09]
marry Japanese	0.1434	0.1678	0.203	0.179
	[0.25]	[0.25]	[0.24]	[0.24]
employee rank	0.0763	0.0875	0.083	0.0971
	[0.13]	[0.13]	[0.13]	[0.13]
age	0.0041	0.0014	0.0043	0.0002
	[0.02]	[0.02]	[0.02]	[0.02]
male	-0.0727	-0.0545	-0.1099	-0.0621
	[0.12]	[0.12]	[0.11]	[0.11]
job change	-0.3145	-0.3221	-0.2517	-0.2406
	[0.24]	[0.23]	[0.23]	[0.23]
job type dummies	Yes	Yes	No	Yes

Control variables: firm				
have foreign manager	0.6418	0.644	0.5223	0.5893
	[0.23]***	[0.23]***	[0.23]**	[0.22]***
long- term employment	0.1983	0.1693	0.1704	0.1918
	[0.11]*	[0.10]*	[0.11]	[0.10]*
merit- based pay	0.0329	0.0261	0.0017	-0.0381
	[0.11]	[0.10]	[0.10]	[0.10]
promotion selection at early age	-0.0925	-0.0815	-0.0784	-0.1117
	[0.08]	[0.08]	[0.08]	[0.08]
oversea activities	-0.2927	-0.2547	-0.2546	-0.1386
	[0.23]	[0.22]	[0.22]	[0.19]
foreign firm	0.613	0.6715	0.4506	0.5412
	[0.41]	[0.39]*	[0.39]	[0.38]
industry dummies	Yes	Yes	Yes	No
HRM dummies (foreigner)	Yes	No	Yes	Yes
Sample selection:				
Migration decision				
age	-0.0203	-0.0203	-0.0202	-0.0203
	[0.01]***	[0.01]***	[0.01]***	[0.01]***
marriage	-0.214	-0.2142	-0.219	-0.2144
	[0.10]**	[0.10]**	[0.10]**	[0.10]**
edu_graduate	4.7034	4.7049	4.7037	4.7028
	[0.31]***	[0.31]***	[0.31]***	[0.31]***
edu_undergraduate	2.8937	2.8932	2.8947	2.8932
	[0.30]***	[0.30]***	[0.29]***	[0.30]***
edu_high_school	0.9859	0.9852	0.984	0.9853
	[0.30]***	[0.30]***	[0.30]***	[0.30]***
constant	-2.5054	-2.5056	-2.5049	-2.5049
	[0.33]***	[0.33]***	[0.33]***	[0.33]***
cut1	-3.5763	-3.7961	-3.2386	-3.4227
	[1.45]**	[1.41]***	[1.39]**	[1.24]***
cut2	-2.4857	-2.7042	-2.1702	-2.3587
	[1.44]*	[1.40]*	[1.39]	[1.23]*
cut3	-0.7682	-0.995	-0.4862	-0.6854
	[1.44]	[1.40]	[1.39]	[1.23]
athrho	0.0101	-0.0027	-0.0201	0.0003
	[0.14]	[0.14]	[0.14]	[0.14]
Prob (LR test of rho = 0)	0.9425	0.9842	0.883	0.9981
Log likelihood	-1076.23	-1078.56	-1087.84	-1087.25
N	6548	6549	6550	6548

Estimation Results: Sample Selection Model

* Significant at the 10% level; ** significant at the 5% level; *** significant at the 1% level

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