Dialectologia 27 *(2021), 161-173.*
ISSN: 2013-2247

Received 24 July 2019.
Accepted 20 October 2019.
DOI: 10.1344/Dialectologia2021.27.6

LABOR MARKET DISCRIMINATION DEPENDING ON DIALECT AND HOMETOWN; EVIDENCE FROM JAPANESE LABOR MARKET COMPOSED BY ALMOST SAME RACE PEOPLE

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Abstract

In this paper, I estimate the "Employer Learning Model" with a Japanese panel dataset. With this estimation, I would like to test whether Japanese employers modify their use of education for the evaluation of employees' wages and whether wage disparity based on hometown exists in the Japanese labor market that is comprised of only a yellow-skinned race. The results of the analysis show that Japanese employers are learning about employees' productivity, but the feature of learning is different than shown in previous studies. As employees' tenures grow longer, the effect on wages of a variable, which can only be observed by econometricians (reasoning test score is used in this paper), grows bigger. However, the effect of the length of education remains, regardless of long tenure. Furthermore, wage disparity based on employees' hometown is confirmed, and the employees from a hometown using a unique dialect tend to have low wages.

Keywords

dialect, hometown, discrimination, wage disparity

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DISCRIMINACIÓN EN EL MERCADO LABORAL SEGÚN EL DIALECTO Y LA CIUDAD NATAL; EVIDENCIA PROCEDENTE DEL MERCADO LABORAL JAPONÉS COMPUESTO POR PERSONAS CASI DE LA MISMA DE RAZA

Resumen

En este artículo, se ha calculado el "Modelo de conocimiento del empleador" con un conjunto de datos que provienen de comités japoneses. Con esta estimación, se pretende probar si los empleadores japoneses modifican el uso de su conocimiento para evaluar los salarios de los empleados y si existe, en el mercado laboral japonés que se compone solo de una sola raza, una diferencia salarial basada en la ciudad de origen. Los resultados del análisis muestran que los empleadores japoneses conocen la productividad de los empleados, pero las características de este conocimiento son diferentes a las que estudios anteriores han mostrado. A medida que la permanencia de los empleados se prolonga, el efecto sobre los salarios de una variable aumenta. Esto solo puede ser observado por los econometristas (en este documento se utiliza la puntuación de la prueba de razonamiento). Sin embargo, el efecto de la duración del conocimiento se mantiene, independientemente de la antigüedad. Además, se confirma la diferencia salarial basada en la ciudad de origen de los empleados, de manera que los empleados de una ciudad de origen que utilizan un solo dialecto tienden a tener salarios bajos.

Palabras clave

dialecto, lugar de nacimiento, discriminación, diferencia salarial

1. Introduction

In this paper, I analyze whether wage disparity based on hometown exists in the labor market that has no racial diversity, estimating with the Employer Learning (EL) model. Previous studies showed that the wage disparity between white and black races exists, but it is not considered statistical discrimination because the wage disparity could not be confirmed among freshman employees only (Altonji & Pierret 2001, Mansour 2012, Fadlon 2015). In addition, these studies showed that employers learn employees' productivity and modify their educationally based evaluation.

In Japan, there is little racial diversity, so using Japanese data, I would like to investigate the effect of employees' native land on wages with controlled racial

effects. In Japan, there are some unique dialects that differ from standard Japanese in terms of words and accent. Regional variations can also be observed regarding culture. As mentioned by Lang (1986), workers who belong to a minority in terms of their language, a non-linguistic way of communication and culture tend to be treated discriminately by their employer or by customers. This is due to minimizing transactions costs. Therefore, even if there are no racial differences, regional diversity affects wage disparity. This hypothesis can be verified by studying the Japanese labor market.

Moreover, in Japan, there are almost no studies about EL,[1] so I would like to clarify whether employers are learning from their employees' productivity. Prior studies estimate the Mincer Wage Equation which has the following independent variables; education, Armed Forces Qualification Test (AFQT), black dummy, duration in labor market, and cross terms made from the above variables. As a result of these estimations, AFQT, which could not be observed at the time of recruitment by employers, had no effect on wages in the rookie year but showed an increase in the effect over a long period. On the other hand, the effect of education, observed by both employers and econometricians, is great at the beginning but gradually diminishes. These results show that employers accumulate information about their employees' productivity and modify decisions about wages.

However, the information about productivity, observed by econometricians only, is not investigated by most questionnaires. All prior studies that I have shown use the National Longitudinal Survey of Youth (NLSY) which contains AFQT. So, estimating the EL model with Japanese dataset has contributed to the EL

[1] Only Araki, Kawaguchi & Onozuka (2015) provides the evidence about "EL" in Japan. They reported that Japanese employers are learning about employees' productivity according to tenure, and evaluation of education has become extinct approximately 5 years. However, analysis of Araki, Kawaguchi & Onozuka (2015) is different from other prior research. For example, Araki, Kawaguchi & Onozuka (2015) uses personnel dataset of two companies and analyzed with structural estimation

hypothesis with another dataset. I use Japan Household Panel Survey (JHPS/KHPS)[2] data containing information related to productivity not observed directly by employers. JHPS/KHPS investigates reasoning test scores by carrying out a test as "exercise of brain for break". Using this test score instead of AFQT, I try to clarify whether the EL hypothesis could be confirmed with another dataset and whether Japanese employers learn about their employees' productivity and then modify their wages.

JHPS/KHPS had investigated information about birth and growth place of employees, so using JHPS/KHPS enabled to testing wage disparity by native land. In Japan, there are some dialects spoken that are quite different from standard Japanese. According to Lang (1986), having a hometown where the minority dialect is spoken might be the cause of wage disparity. Lang (1986: 371-375) pointed out, theoretically, that the wages of some employees, whose *language*[3] is in the minority in their workplace, might be set lower because of communication costs. Therefore, even if all the employees' race is the same, workers from some geographic areas receive discriminatory treatment in labor market. Although estimating with the black dummy variable cannot identify communication effects from race effects, by estimating with Japanese dataset, I can confirm the communication effect because the data does not contain race as an effect.

The rest of the paper proceeds as follows. In section 2, I describe the empirical methodology of the paper, introducing Japanese dialects. Section 3 describes the data, and Section 4 includes results and robustness checks. Section 5 concludes.

[2] Detailed information about the dataset is described in this URL: <https://www.pdrc.keio.ac.jp/en/paneldata/datasets/jhpskhps/>

[3] In Lang (1986: 363), the "language" contains nonverbal signals like body language.

2. Empirical methodology

The language spoken in Japan is not homogenous between regions. There are many types of accent and words as dialects. The standard Japanese had been set and promoted in the Meiji-era to push forward modernization. Since only 150 years have passed, local dialects are surviving and have changed the accent of standard Japanese regionally. Furthermore, features of nonverbal communication are different between regions. For example, while the people of Tohoku tend not to say what they think, the people of Kansai tend to say what they think immediately (Nishio 2009: 9-11).

If regional variances create communication cost, employers might negatively discriminate against the minorities who have grown up with a unique dialect. Even though there are little race differences in the Japanese labor market, discrimination might still exist. In order to determine the possibility, this paper tests whether the wages of employees from the regions where a unique dialect is spoken are lower than that of employees from the regions where standard Japanese is originally used. As a fact, Freynet, Clément & Sylvestre (2018: 27-28) reports that nonstandard speakers in Canada tend to be treated discriminately because of accent. In addition, confirming whether wages of Japanese employees would be modified based on EL is another primary purpose of this paper.

To achieve these goals, I estimate using the following log wage model which is like earlier studies presented by Altonji & Pierret (2001: 318):

$$lnw_{it} = b_1 s_i + b_2 z_i + b_3 r_i + b_4 s_i t + b_5 z_i t + b_6 r_i t + b_6 t + \mu_{it} \quad (1)$$

where s_i is “years of education”, z_i is “reasoning test score” and “parents’ education” that isn’t observable at the time of recruitment by employers, is the dummy indicating the hometown of employee having a unique dialect, t is tenure

or potential experience as time of "Employer Learning",[4] s_it, $z_i t$ and r_it are each cross terms with t.

Similar to prior studies, if the coefficient of s_i and $z_i t$ became positive but coefficient of z_i and s_it did not have a positive effect, it would indicate that Japanese employers learn about their employees' productivity and modify wage determinations. In addition, the coefficient of r_i represents the existence of language discrimination, and coefficient of r_it represents whether the discrimination would diminish with the accumulation of tenure.

3. Data

The JHPS/KHSP, which has been implemented continuously since 2004, contains male and female respondents over 20 years old. The JHPS/KHSP started with 4,005 respondents as KHPS and integrated the JHPS, which is of the same scale and type as the survey in 2014. In 2007 and 2012, 1,400 and 1,000 respondents were added, respectively. As the JHPS/KHSP covers a wide range of analysis topics, the JHPS/KHSP allows the econometrician to address almost all variables addressed in earlier papers. The reasoning test was implemented in 2012 as "exercise of brain for break". This test consisted of five multiple-choice questions with one correct answer among five choices. With one correct answer corresponding to one point, a 0~5 points test score is established in the paper.

Additionally, JHPS/KHSP asks respondents the following question to understand their hometown.

"From 5 years old to 15 years old, which prefecture or country were you habitually a resident of?" Using the answer to this question and the distribution

[4] The definition of these variables is presented in next section. Because the importance of firm-specific human capital is large in Japanese labor market (Mincer & Higuchi 1988: 24-25), this paper pays attention to not only potential experience but also tenure.

rate of standard language in each prefecture, I set two kinds of "minority dialect hometown dummy."

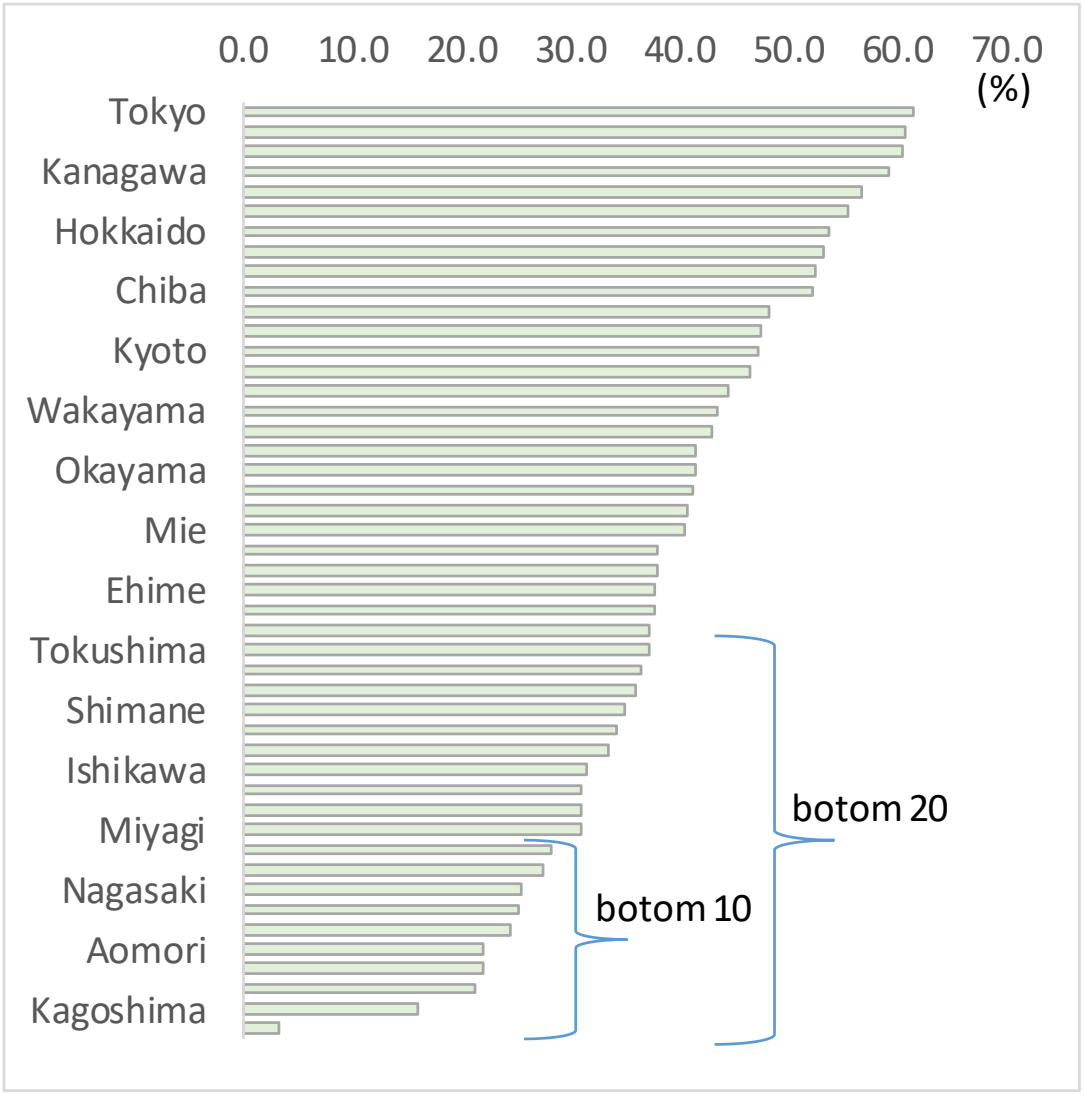

Figure1. Distribution rate of standard language in each prefecture
Source: Author's making using data from Kawanishi (1981: 52-55)

The index is made by calculating the rate of words that correspond to the standard language among all words spoken in each prefecture by dialect (Kawanishi 1981: 52-55).[5]

[5] The data used to make the index was quoted from "Linguistic Atlas of Japan" of the National Institute for Japanese Language and Linguistics. The atlas had heard the dialect of speakers who lived in various areas,

If the distribution rate of a prefecture is low, this indicates that the prefecture's dialect has unique features and that people from the prefecture would pay some cost of communication in Standard Japanese.

Therefore, in the paper, I set "minority dialect hometown dummy" =1, if JHPS/KHSP samples have a hometown where distribution rate of the standard language is in the bottom 10 or 20.[6] With the dummy variable regarded as , I test the hypothesis of Lang (1986).

The samples used in this paper are fully engaged Full-Time workers (working at least 30 hours per week). Moreover, I excluded females and males over 46 years old in order to compare to previous studies that used samples limited to young male full-time workers.[7] Eventually, the sample of this paper is composed of 3,538 observations (619 responders).

Table1 presents summary statistics of the sample I use. The mean of Real Hourly Wage $(Real\ Hourly\ Wage = \frac{annual\ salary}{(working\ hours\ per\ week)\times 4\times 12}/CPI)$ is 2,207 yen, years of education is 14 on average, and mean of reasoning test score is 2.9 points. The mean of potential experience, which is defined as age minus years of education minus 6, is 22.4 years. On the other hand, the mean of tenure (defined as years of working in the current workplace) is 10.6.

over 2,000 points. All speakers were limited to persons born before 1903 to exclude the influence of policy that promoted standard language.

[6] In addition, I made "random hometown dummy" by selecting 10 or 20 hometowns randomly. I estimated EL model with the dummy instead of "minority dialect hometown dummy" for robustness check.

[7] JHPS/KHPS is not a survey which targets only young male responders. Maintaining some scale of sample, I widened age group to under 45.

	Mean	Standard deviation
Real Hourly Wage	2,207.07	1,115.06
Reasoning test score(RTS)	2.90	1.51
Education	14.36	2.16
Tenure	10.68	7.09
Squared term of Tenure	164.37	195.88
Tenure × Education	152.70	102.07
Tenure × RTS	31.03	27.97
Potential experience(PE)	22.43	6.23
Squared term of PE	542.06	267.77
PE × Education	317.80	87.31
PE × RTS	64.01	37.76
Minority dialect hometown dummy bottom10	0.06	0.23
Minority dialect hometown dummy bottom20	0.18	0.39
Tenure × MD10	0.65	3.30
Tenure × MD20	2.17	5.62
PE × MD10	1.27	5.36
PE × MD20	2.17	5.62
Father's Education	12.98	2.09
Mother's Education	12.37	1.63
No answer about hometown dummy	0.20	0.40
Current resident region dummy of Kansai	0.22	0.41
Observations	3,538	

Table1. Summary statistics of the sample used in this analysis

4. Results

The results of estimates are shown in Table 2. Panel A results used experience as *t* variable, and panel B results used tenure.

First, when I confirm the existence of EL the results show partial support for the EL hypothesis. All coefficients of Education are positive and statistically significant, while the effect of RTS changed from positive to negative depending on controlling the interaction term with experience or tenure. All coefficients of RTS that interacted with the *t* variable are positive and statistically significant, while the coefficients of education that interacted with experience are significantly positive but the cross term with tenure does not report significant coefficients. Unlike earlier studies, all coefficients of s_it, did not show a statistically negative effect. However, coefficients of $z_i t$ show similar results to earlier studies. These

results show partial support for the hypothesis that "Employer Learning" exists[8] in the Japanese labor market. Additionally, admitting job change in all workplaces, employers consider employees' education even if employees have accumulated extensive experience. While under the same employer, the effect of education exists only at the start of employment. Perhaps, the continuous effect of education might have been established by the Japanese career system. In Japan, most workplaces adopt two types of systems. One is a career course that helps candidates advance to executive positions, and the other is a popular course after which the employee cannot be promoted to the level of an executive. In most cases, high-school graduates are recruited as career course workers. Therefore, the effect of education might not disappear, even if workers accumulate time in labor market.

Second, I am going to confirm the existence of wage disparity caused by a hometown where a unique dialect is used. Although all coefficients of "minority-dialect hometown dummy" show statistically significantly negatives, all coefficients of r_it except (1)~(3) in Panel B are positive. The results are consistent to the hypothesis of Lang (1986) and indicate that although wage disparity exist, the disparity decrease gradually as experience or tenure passes. However, if workers corresponding to "minority dialect hometown dummy" = 1 try to erase the disparity, they need to accumulate enormous tenure or experience. When I focus on the absolute values of these coefficients, while that of "minority dialect hometown dummy" are extremely high (-0.18~-0.29), that of cross term interacted with experience or tenure are tiny (0.0063~0.0084). Workers need about 30 years' experience, erasing the wage disparity completely. As the slow speed of resolution

[8] Although RTS cannot be observed directly by employer, coefficients of RTS show statistically significantly negatives. Employer might catch information which correlate with RTS in recruiting and interviewing and make low evaluations, regarding the candidate as an argumentative person. However, the negative effect diminishes and disappears after about 7 years with the same company.

makes a large gap in lifetime income, the wage disparity result from hometown differences can be considered as an important problem to be solved.[9]

Panel A	(1)	(2)	(3)	(4)	(5)	(6)
	b/se	b/se	b/se	b/se	b/se	b/se
Education	0.0456	0.0412	0.0499	0.0462	0.0415	0.0497
	[0.0132]***	[0.0133]***	[0.0136]***	[0.0132]***	[0.0133]***	[0.0136]***
Minority dialect hometown dummy bottom10(MD10)	−0.2873	−0.2712	−0.2978	−	−	−
	[0.0668]***	[0.0673]***	[0.0672]***	−	−	−
Minority dialect hometown dummy bottom20(MD20)	−	−	−	−0.2045	−0.1902	−0.1975
	−	−	−	[0.0520]***	[0.0522]***	[0.0524]***
Reasoning test score(RTS)	−	0.0113	−0.0265	−	0.012	−0.0242
	−	[0.0046]**	[0.0145]*	−	[0.0046]***	[0.0144]*
Potential experience(PE)	0.0174	0.0164	0.0182	0.0187	0.0175	0.0193
	[0.0139]	[0.0140]	[0.0139]	[0.0139]	[0.0140]	[0.0140]
Squared term of PE	−0.0004	−0.0004	−0.0004	−0.0004	−0.0004	−0.0005
	[0.0002]**	[0.0002]**	[0.0002]**	[0.0002]**	[0.0002]**	[0.0002]**
PE × Education	0.002	0.002	0.0017	0.0019	0.002	0.0017
	[0.0006]***	[0.0006]***	[0.0006]***	[0.0006]***	[0.0006]***	[0.0006]***
PE × MD10	0.0077	0.0073	0.0084	−	−	−
	[0.0032]**	[0.0032]**	[0.0032]***	−	−	−
PE × MD20	−	−	−	0.0068	0.0063	0.0064
	−	−	−	[0.0023]***	[0.0023]***	[0.0023]***
PE × RTS	−	−	0.0017	−	−	0.0016
	−	−	[0.0007]**	−	−	[0.0007]**
Observations	3538	3538	3538	3538	3538	3538

Panel B	(1)	(2)	(3)	(4)	(5)	(6)
	b/se	b/se	b/se	b/se	b/se	b/se
Education	0.0641	0.063	0.0669	0.0637	0.0623	0.066
	[0.0060]***	[0.0062]***	[0.0064]***	[0.0061]***	[0.0062]***	[0.0064]***
Minority dialect hometown dummy bottom10(MD10)	−0.1878	−0.1859	−0.1944	−	−	−
	[0.0467]***	[0.0468]***	[0.0470]***	−	−	−
Minority dialect hometown dummy bottom20(MD20)	−	−	−	−0.1853	−0.1854	−0.181
	−	−	−	[0.0306]***	[0.0305]***	[0.0305]***
Reasoning test score(RTS)	−	0.0053	−0.0171	−	0.0069	−0.0144
	−	[0.0045]	[0.0085]**	−	[0.0045]	[0.0085]*
Tenure	0.0297	0.0298	0.0296	0.0293	0.0294	0.029
	[0.0081]***	[0.0081]***	[0.0080]***	[0.0085]***	[0.0085]***	[0.0084]***
Squared term of tenure	−0.0002	−0.0002	−0.0003	−0.0003	−0.0003	−0.0003
	[0.0002]	[0.0002]	[0.0002]	[0.0002]	[0.0002]	[0.0002]*
Tenure × Education	0.0002	0.0002	−0.0002	0.0002	0.0002	−0.0001
	[0.0005]	[0.0005]	[0.0005]	[0.0005]	[0.0005]	[0.0005]
Tenure × MD10	0.0028	0.0029	0.0039	−	−	−
	[0.0036]	[0.0036]	[0.0036]	−	−	−
Tenure × MD20	−	−	−	0.0075	0.0076	0.0073
	−	−	−	[0.0021]***	[0.0021]***	[0.0021]***
Tenure × RTS	−	−	0.0021	−	−	0.002
	−	−	[0.0006]***	−	−	[0.0006]***
Observations	3538	3538	3538	3538	3538	3538

Table2. Results of analysis about EL and “Wage disparity result from hometown”
Note : * P<0.10, **P<0.05, ***P<0.001. All regressions control for parents’ education, dummy variable for “Hometown” and “Current region of residence”. Numerical values in parentheses are White/Huber standard errors.

[9] Additionally, I have estimated the same model with samples excluding respondents who did not answer about their hometown. However, the results have shown same the conclusion described in this sentence.

5. Conclusions

In this paper, I estimated "Employer Learning" model with Japanese representative panel data to clarify two main questions. First, I confirm whether Japanese employers learn their employees' productivity and change wage determinations as employment period passes, using reasoning test scores instead of the AFQT that is used almost all previous studies. Second, I confirm whether wage disparity, resulting from hometowns where a unique dialect is used, which has different accents and words from the standard language, exist. If the communication in standard Japanese between a unique dialect speaker and others creates some communication cost, employees who have grown up with a unique dialect might be discriminately treated as Lang (1986) pointed out.

The results show that Japanese employers are learning about employees' productivity, but the feature of learning is different from what earlier studies show. As employees' tenure gets longer, the effect of reasoning test scores on wages grows bigger. However, the effect of education remains and does not diminish regardless of tenure.

Furthermore, wage disparity resulting from employees' hometown have been confirmed, and the employees from hometowns where a unique dialect is used have tended to have low wages. In addition, although the disparities have weakened gradually, the speed of resolution is slow, so their lifetime income would be lower than employees from other hometowns. In the Japanese labor market where there is almost no racial diversity, differences in native land make wage discrimination. According to Fadlon (2015), estimating "EL" model, if employee's race matches employer's race, discrimination disappears. Considering this result and that of Fadlon (2015), not only racial differences but also differences in language or dialects are important factors of discrimination.

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