

English skills as human capital in the Japanese labor market:
An econometric examination of the effect of English skills on earnings

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Abstract

本研究の目的は、日本のビジネス言説にしばしば見られる、「英語ができると収入が増える」という議論を検証することである。この考え方は、英語力の有無により労働の質・量が左右されると想定している点で、人的資本論の枠組みで捉えることが可能であり、本論文もこの枠組みに基づいた分析を行う。先行研究の諸問題（1. 日本全体が視野に入っていない、2. 労働市場が一枚岩として捉えられており、「人的資本」が機能する文脈／しない文脈の存在の可能性が念頭におかれていない、3. 「大学歴」という第三の変数によって、英語力と賃金が同時に影響を受けることに対する配慮がない）を踏まえ、日本の労働市場のどの文脈で、英語が「人的資本」として働くかを労働経済学の計量モデルに基づき検討する。その結果、多くの文脈において、英語力が「人的資本」として働いているという明確な証拠は得られず、むしろ、両者の関係は、大学歴等による疑似相関の可能性が高いことが示唆された。最後に、考察では、こうした結果にもかかわらず、「人的資本としての英語力」言説が流布する背景を議論した。

Key Words: English skills, Human capital, Japanese labor market, Econometrics

1. Introduction

1.1 Background

Recently in Japan, English language skills are sometimes viewed as a symbol of economic success. Some business magazines and books (e.g. *President Family* 2008; Ochi 2007) take this line, asserting that there appears to be a widening gap in income between people who speak English and those who do not. Such a view is also stated, although not in such a sensational way, by some academic researchers (e.g. Torikai 2001:25-6; Seargeant 2009: 106-31) and journalists (e.g. Funabashi 2000). Indeed, it is often reported that some domestic firms in Japan require their employees to have a certain level of English skills for promotions (e.g. *AERA* 2003), which implies a close connection between English skills and earnings. Thus, an economic value of English language skills is generally accepted in Japan, or, at least, not regarded as utterly false,

and this belief is probably reflected in the current English language learning boom in Japan.

What underlies this view, then, is the human capital theory (Becker 1962) though most of the advocates of the view are probably unaware of it. According to this theory, a worker's competence, knowledge, personalities and other job-related features (i.e. human capital) *directly* determine the quality and quantity of the job he or she produces, which causes the difference of wages among workers. The same rationale is, probably unconsciously, accepted by the discourse stressing the economic value of English skills because it regards mastering of the language as a crucial factor in order to obtain high earnings. In other words, it deems English language skills as an element of human capital. The present paper deals with this view, and critically examines whether English skills are human capital in the Japanese labor market.

1.2 Previous work

In spite of this widely-held view, however, there is little research which demonstrates the economic advantages of people who speak English in Japanese society¹⁾. Matsushige (2002) and Nishimura et al. (2003) reveal income gaps between those who are good at English and those who are not, by analyzing data samples of graduates of some universities. Kano (2005) also demonstrates an economic value of English skills by analyzing data of labor living in metropolitan areas.

However, the previous work has at least three methodological and interpretative problems. The first is related to the sampling method used. The data sample of Matsushige (2002) and Nishimura et al. (2003) is extracted from graduates of a few universities with relatively high prestige, so what their findings suggest is related to only a tiny fraction of the population of all labor in Japan. In contrast, the discourse that sensationally connects English skills with economic success seldom considers such phenomena as relevant to a particular group of workers, but rather, it claims that they are something like a general, or even universal, trend in the Japanese labor market. For instance, *President Family's* (2008) article, symbolically represented by the title "When you speak English, do you make a profit?," makes no mention of the possibility that English skills may work as human capital for only a limited proportion of workers. In order to critically examine the discourse, therefore, it is necessary to analyze a data sample which appropriately represents all labor in Japan and obtain a general picture of the relationship between labor and English skills.

Second, the previous work does not pay much attention to the *context* in which English skills affect earnings. In other words, it does not appropriately investigate *what types of workers* receive an economic gain from their English skills and what types of workers do not. On the other hand, it is natural to assume that if a worker is not engaged in international transactions at all, English

skills are of little importance for him or her and, consequently, have little influence on his or her earnings. Even today in this era of a globalized economy, many and various types of workers still do not need to use English for their job; therefore, it is expected that, whereas for some types of workers English skills have a significant impact on their earnings, for others they do not.

The third limitation of the previous work is concerned with a spurious effect of hierarchical higher education. It is well known (sometimes even notorious) that the Japanese labor market gives very high priority to workers' educational credentials. Their wages, as well as their access to a specific occupation and large corporations, are heavily determined by whether they graduated from prestigious universities, as well as how long they had received formal schooling (see Ishida 1993: Chapter 5). However, the previous work (except Matsushige (2002), which deals with the graduates of only one university) does not control what university respondents graduated from, even though it controls years of schooling, so the income gaps the previous work reveals could be a mere reflection of the prestige of some universities; since such universities usually set a more difficult test of English as the subject of their entrance exams, their graduates, i.e. successful applicants for the test, are supposed to have higher English skills than the graduates of less-prestigious universities. For this reason, the previous work possibly fails to reveal a *direct*, or non-spurious, effect of English skills on earnings.

Based on the discussion so far, the research question of the present paper is formulated as follows:

- For what types of workers in Japan do English skills have a *direct* effect on their earnings?

Thus, the present paper, taking *all* Japanese labor into consideration, aims at revealing the context in which English skills function as a component of human capital rather than as a sign or signal of the university from which one graduated.

2. Model

Based on Mincer's (1974) wage equation, the effect of English skills on earnings is formulated as follows:

$$(1) \quad \ln w = \alpha + \beta X + \gamma Eng + u$$

In the model (1), the log of wages (w) is predicted by their English skills, Eng , and other human capital, X . Since the main interest of the present study is the effect of English skills (Eng), the degree of γ is of central importance; in other words, if γ is greater than zero, it is legitimized to

conclude that there exists a direct effect of English skills on earnings. (Note that in the model (1), α is a constant term, β , a regression coefficient of X , and, u , random disturbance).

However, the equation (1) cannot distinguish whether γ denotes English language skills as human capital (i.e. a *direct* effect) or a mere reflection of hierarchical higher educational institutions (i.e. a *spurious* correlation). Indeed, it is quite difficult to accurately discriminate between the two, but, at least, it is possible to assume that if a worker does *not* need English skills in his or her workplace, γ indicates something other than the direct effect because English skills, by definition, do not work as human capital for him or her. Based on this assumption, if the wages of labor who does *not* feel occupational needs for English skills are w_0 , they can be estimated by the following equation:

$$(2) \quad \ln w_0 = \alpha_0 + \beta_0 X_0 + \gamma_0 Eng_0 + u_0$$

Here, γ_0 denotes the degree of something other than the direct effect of English skills. On the other hand, the equation which predicts the wages of labor who *does* feel such needs (w_1) is

$$(3) \quad \ln w_1 = \alpha_1 + \beta_1 X_1 + \gamma_1 Eng_1 + u_1$$

Here, if it is presupposed that the degree of the total effect, except the direct effect, is equal in both equations (2) and (3), it suggests that γ_1 is composed of γ_0 and the direct effect (i.e. direct effect = $\gamma_1 - \gamma_0$). Therefore, if it is true that γ_1 is greater than γ_0 , there is supposed to be a direct effect of English skills on earnings.

3. Data

The data used for the present paper is the Working People Survey conducted by the Recruit Works Institute in 2000 (hereafter, WPS)². The respondents of this survey are male and female labor who lived in three major metropolitan areas around Tokyo, Osaka and Nagoya (their ages are from 18 to 59). The total number of valid samples is 17,253, although, unfortunately, its respondent rate is unavailable (see Recruit Works Institute 2001a, 2001b, 2001c for more information).

WPS has at least two strengths for the purpose of this study. First, thanks to its design based on random-sampling, its findings can be generalized to the population of labor in the metropolitan areas. This generalization, of course, cannot be applied to *all Japanese labor*, but it is possible to assume that the economic value of English in question in an *entire* Japanese labor market is not as high and general as that in the metropolitan areas; corporations and workers that reside in an

urban area probably put more importance on English skills than ones in a non-urban area, as suggested by Terasawa's (2011) demonstration that there are statistically significant gaps in the rate of English use in the workplace among labor in big cities, small and middle cities, and town and villages. Since the gap of English use probably reflects the gap of necessities and importance of the language, it might imply that the direct effect of English skills on urban workers' earnings is greater than the effect on non-urban workers' earnings, although, of course, this posit has to be examined in detail by further investigation. The second strength of WPS is that it has a very large number of samples. This enables detailed and thorough analysis because it can avoid a loss of reliability in analyzing a dataset clustered into many subgroups.

3.1 Variables: English skills

WPS has variables of English skills, occupational needs for English skills, and others. The following sections discuss its questionnaire items. For English skills, WPS asks respondents to judge their speaking skills in English, as shown in Table 1. The present study uses this item for the variable of Eng_0 and Eng_1 in the wage equation (2) and (3).

Choice	N
1. I can hardly speak English	13278 (77.0%)
2. I can only do daily conversation in English	3215 (18.6%)
3. I can negotiate business in English	543 (3.1%)
4. I can work as an interpreter	60 (0.3%)
No answer	157 (0.9%)
Total	17253 (100.0%)

Table 1 Q. Which is the best description of your speaking skills in English?

Although WPS also has questionnaire items which ask respondents' TOEIC and TOEFL scores and grades in *Jitsuyo Eigo Kentei* (the practical English proficiency test), the present study does not include them in the wage equation in question, because these items are less appropriate than the respondent's judgment of their own speaking skills in English for the following two reasons. One, concerning the validity of measurement, is that the results of the tests only reflect the respondents' English skills at a specific point in time in the *past* so cannot represent the *present* levels of respondents' English skills³⁾. The other is a methodological problem; that is, only a tiny minority has ever taken the tests⁴⁾, making the number of cases very small. Therefore, this study, based on the self-reported proficiency measures, classifies the respondents into two groups:

labor with English skills (i.e. Eng_0 or $Eng_1 = 1$), who chooses 2, 3, or 4 in Table 1, and labor without them (Eng_0 or $Eng_1 = 0$), who chooses 1.

3.2 Variables: Occupational needs for English skills

Whether respondents feel necessities of English skills for their job can be assessed by the questionnaire item which asks them whether they have enough skills in English for their job (see Table 2). The respondents who choose 1, 2, 3, and 4 in this item can be regarded as labor with occupational needs for English skills, while respondents who choose 5 are classified into those without them. In other words, the wage equation (3) in section 2 is applied to the former respondents and the equation (2) the latter.

Choice	N	
1. I satisfy them very well	922	(5.3%)
2. I satisfy them well	1946	(11.3%)
3. I do not satisfy them so well	1824	(10.6%)
4. I do not satisfy them at all	1961	(11.4%)
5. My workplace does not require English skills	10532	(61.0%)
No answer	68	(0.4%)
Total	17253	(100.0%)

Table 2: Q. What extent do you satisfy prerequisite English skills in your work place?

3.3 Other Variables

This section explains other variables used for estimation. According to the human capital theory, workers' wages are determined by years of experience (how long they have been engaged in an occupation), squared years of experience, and years of schooling (Mincer 1974). In addition to these, the equation includes some control variables such as respondents' age, the age squared, and their employment status (regular, contract, part-time, or temporary employees). Furthermore, contextual variables, i.e. the subcategories by which each estimation is conducted, are gender, types of jobs (professional, administrative, clerical, sales, or blue-collar jobs), industries (16 categories such as manufacturing and retail trade)⁵⁾, and size of corporation (small firms with 1-99 employees, middle with 100-999, large with 1000 or more).

Finally, each estimation in the next section excludes those whose work-time hours are less than 35 ($N = 2887$) and those who work for a foreign-affiliated firm ($N = 486$). Since

foreign-affiliated firms, when hiring someone, generally put less importance on what university he or she graduated from than a domestic firm does, the presupposition, which posited in section 2 that the degree of the total effect except the direct effect is equal in both equation (2) and (3), is much less likely to be true. However, the author confirmed that the estimation in which these employees are included showed almost the same results as the following ones.

4. Result

The following sections examine the effect of English skills on earnings (i.e. γ_0 and γ_1) by job types (4.1), by industry (4.2) and by corporation size (4.3). Appendix 1 shows summary statistics of variables used for the estimation.

4.1 Job types

This section examines the contextual effects of types of jobs. The result of the estimation by ordinary least squares regression of γ_0 and γ_1 (i.e. $\hat{\gamma}_0$ and $\hat{\gamma}_1$ respectively) is shown in Table 3. Since the number of female workers in managerial and sales jobs is very small (N=38 and N = 116 respectively), both genders of these types of workers are integrated. Table 3 also includes the difference between $\hat{\gamma}_0$ and $\hat{\gamma}_1$ and its significance probability. These estimations are depicted in Figure 1 for ease of interpretation. Each plotted point in the figure refers to the estimation of the effect of English skills on earnings and each arrow shows its 90% credential intervals. The left blacked-out point (●) of each pair indicates the estimation for workers who need English skills for their job (i.e. $\hat{\gamma}_1$) while the right unpainted point (○) shows the estimation for workers who do not ($\hat{\gamma}_0$).

		<u>Need Eng. [1]</u>		<u>Not need [0]</u>		[1] - [0]	<i>p</i> ^{a)}
		Estimation of γ_1		Estimation of γ_2			
		<i>s.e.</i>	<i>N</i>	<i>s.e.</i>	<i>N</i>		
Clerical	Male	0.101		0.058		0.043	0.159
		0.018	1335	0.024	1627		
	Female	0.072		0.058		0.014	0.764
		0.032	446	0.033	1015		
Professsional	M	0.078		0.041		0.037	0.285
		0.019	969	0.028	663		
	F	0.094		0.177		-0.083	0.318
		0.064	197	0.053	396		
Managerial	M&F	0.087		0.135		-0.048	0.260
		0.025	591	0.035	555		
Sales	M&F	-0.143		-0.269		0.127	0.377
		0.076	120	0.121	197		
Blue	M	0.036		-0.014		0.051	0.226
		0.031	731	0.028	1954		
	F	0.062		-0.058		0.120	0.386
		0.106	83	0.089	222		

^{a)} Probability (| [1] - [0] | > 0)

Note: These coefficients are estimated by controlling age, squared age, years of experience, squared years of experience, years of schooling, and employment status.

Table 3 Estimation of the effect of English skills on earnings by type of job

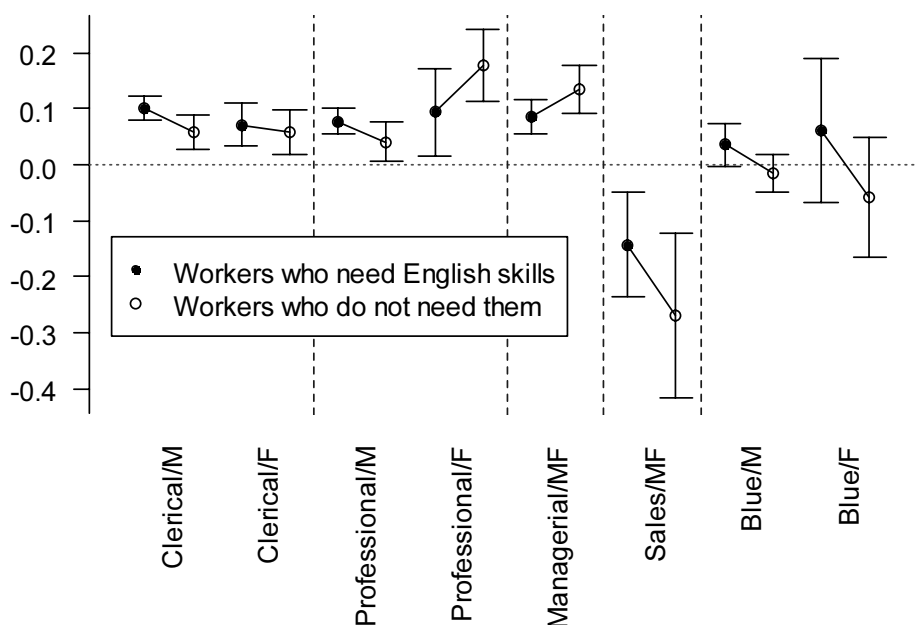


Figure 1 Estimation of the effect of English skills on earnings by type of job

As Figure 1 reveals, there is no type of jobs which indicates such an effect at a statistically significant level. In particular, sales and blue-collar jobs do not seem to show even such tendencies because each lower side of their credential intervals is not above zero at a statistically significant level. This result is convincing in that these types of jobs probably do not view English skills as a crucial competence, but instead place a much higher priority on other skills and attitudes (e.g. job-specified skills and knowledge, ability to concentrate, or emotional management). Therefore, it is probable that the direct effect, if any, might be relevant only to professional, managerial, and clerical workers rather than blue-collar and sales. For this reason, the estimation in the following sections is limited to the three types of workers.

4.2 Industries

This section examines industries. Table 4 and Figure 2 show the result of the estimation (Note that some industries without a large sample size are not clustered into males and females).

		Need Eng. [1]		Not need [0]		[1] - [0]	<i>p</i> ^{a)}
		Estimation of γ_1		Estimation of γ_2			
		<i>s.e.</i>	<i>N</i>	<i>s.e.</i>	<i>N</i>		
Public administration	M	0.054 0.025	256	-0.014 0.042	241	0.068	0.162
	F	0.051 0.095	43	0.186 0.129	68	-0.135	0.397
Construction	M	0.089 0.047	133	0.061 0.083	184	0.027	0.774
	F	0.240 0.137	15	0.276 0.174	54	-0.036	0.870
Manufacturing	M	0.106 0.022	617	0.062 0.033	487	0.044	0.268
	F	0.099 0.078	68	0.087 0.068	165	0.012	0.905
Wholesale trade	M	0.062 0.031	491	0.087 0.045	393	-0.025	0.654
	F	0.038 0.067	60	0.007 0.091	116	0.031	0.785
Retail trade	M	0.077 0.060	158	0.181 0.070	259	-0.104	0.258
	F	0.103 0.126	45	0.101 0.086	149	0.002	0.991
Financial institutions, insurance	M	0.231 0.041	177	0.100 0.048	186	0.131	0.039
	F	0.027 0.069	60	0.143 0.081	165	-0.116	0.277
Information and communication services	M	0.067 0.034	308	-0.013 0.045	226	0.080	0.155
	F	0.311 0.086	44	0.214 0.099	34	0.097	0.460
Educational and research services	M	-0.070 0.059	56	0.087 0.105	46	-0.158	0.191
	F	-0.242 0.111	24	0.079 0.081	32	-0.321	0.020
Other services	M	0.084 0.047	193	0.051 0.060	272	0.034	0.660
	F	-0.022 0.086	68	0.055 0.109	132	-0.076	0.584
Real estate	MF	-0.041 0.171	34	-0.094 0.142	61	0.053	0.812
Electricity, gas, steam supply, water works	MF	0.103 0.096	35	-0.034 0.133	37	0.138	0.401
Transportation	MF	0.075 0.063	121	0.219 0.128	129	-0.144	0.314
Broadcasting, publishing, & advertising	MF	0.234 0.068	125	-0.010 0.069	163	0.244	0.012
Medical and welfare services	MF	0.063 0.090	135	0.019 0.069	331	0.044	0.701

^{a)} Probability of $| [1] - [0] | > 0$

Note: These coefficients are estimated by controlling age, squared age, years of experience, squared years of experience, years of schooling, and employment status. The sample is limited to clerical, professional, and managerial workers (see 4.1)

Table 4 Estimation of the effect of English skills on earnings by industries

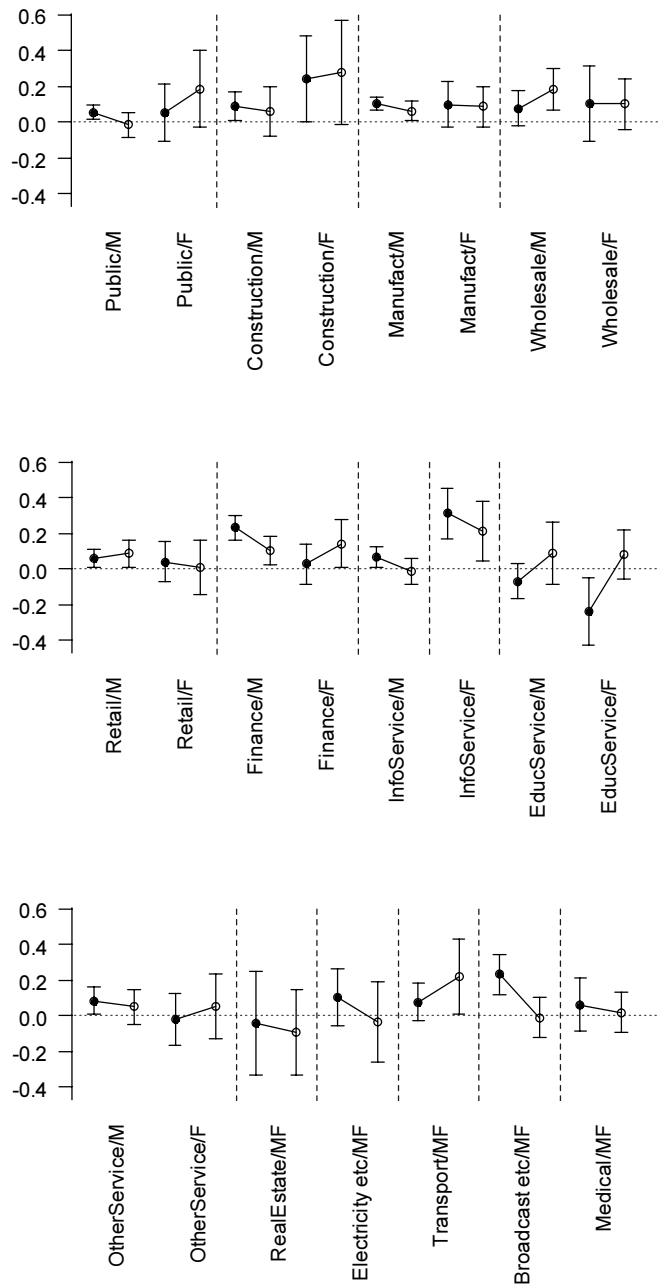


Figure 2 Estimation of the effect of English skills on earnings by type of job

The result reveals that only two industries (male workers of “financial institutions or insurance,” and males and females of “broadcasting, publishing, and advertising”) show a significantly greater $\hat{\gamma}_1$ than $\hat{\gamma}_0$, suggesting the direct effect of English skills on earnings. In

many industries, however, the difference is below zero, or, if over zero, it is very small. These results suggest that the industries in which English skills work as human capital are only a tiny fraction, so the trend is not as universal in the Japanese labor market as has been asserted.

4.3 Corporation size

The size of a firm might be also an important factor closely related to both earnings and English skills. Generally speaking, the workers at larger firm earn more (see Ishida 1993: Chapter 7). Furthermore, Terasawa (2011) demonstrates that workers at larger corporations are more likely to use English in the workplace, suggesting a gap in required mastery of English between the smaller and larger firms. Thus, the two variables, corporation size and importance of English, might have a close relationship, and consequently it can be hypothesized that the corporation size determines the degree of the direct effect of English skills on earnings, i.e. English skills function as human capital better in a larger firm.

		<u>Need Eng. [1]</u>		<u>Not need [0]</u>		[1] - [0]	<i>p</i> ^{a)}
		Estimation of γ_1		Estimation of γ_2			
		<i>s.e.</i>	<i>N</i>	<i>s.e.</i>	<i>N</i>		
1-99 employees	M	0.108 <i>0.029</i>	630	0.033 <i>0.034</i>	892	0.075	0.094
	F	0.033 <i>0.034</i>	892	0.049 <i>0.045</i>	664	-0.015	0.782
100-999	M	0.053 <i>0.024</i>	686	0.068 <i>0.036</i>	766	-0.015	0.732
	F	0.068 <i>0.036</i>	766	0.079 <i>0.044</i>	363	-0.010	0.859
1000+	M	0.092 <i>0.015</i>	1284	0.094 <i>0.023</i>	898	-0.002	0.944
	F	0.094 <i>0.023</i>	898	0.098 <i>0.044</i>	311	-0.004	0.930

^{a)} Probability of $| [1] - [0] | > 0$

Note: These coefficients are estimated by controlling age, squared age, years of experience, squared years of experience, years of schooling, and employment status. The sample is limited to clerical, professional, and managerial workers (see 4.1)

Table 5 Estimation of the effect of English skills on earnings by the size of corporation

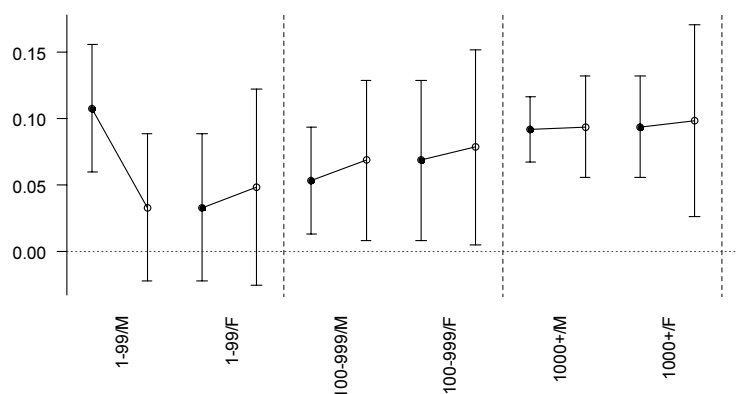


Figure 3 Estimation of the effect of English skills on earnings by corporation size

The estimation by the size of corporation is shown in Table 5 and Figure 3. Contrary to the prediction above, there appears to be no general correlation trend between firm size and the direct effect. Of more importance here is that no single group (although male workers in a small firm might be an exception) implies a direct effect because they fail to show not only a significant difference of the effects between the workers who need English skills and those who do not but also a greater effect of the former than the latter (i.e. $\hat{\gamma}_1 > \hat{\gamma}_0$). These results suggest that, in even a large firm, English skills are unlikely to function as human capital, implying that the direct effect is independent from the corporation size.

5. Discussion

The econometric analysis in the previous section reveals that “English skills as human capital” is not a general trend in the Japanese labor market at all, but rather it is relevant merely to a tiny minority. This result clearly contradicts the view which assumes its widespread, or universal, effect on earnings. Of course, it is likely to be true that workers with English skills earn more (see Figure 1-3; many estimations are above zero, and some of them are statistically significant), but this is probably a spurious relation rather than a causal one.

But why is the image of English skills as human capital so popular or even persuasive? Possible answers are twofold: one is “discourse creates realities” and the other “realities based on naïve statistics create discourse.”

The view has not suddenly appeared in recent years. Rather, it has been often stated at least since the late 1960s according to newspaper examined by the author. *The Asahi Shimbun* (a major newspaper in Japan), 28 July 1969, reported some successful private English language schools, describing that some young corporate employees who attended them “want[ed] to earn higher

income” via mastery of English. Of course, their hope based on the assumption of English skills as human capital cannot be necessarily regarded as a fallacious thought; it is indeed probably relevant to a few, or possibly several, types of workers and industries at least. However, as the discourse *on a particular company or worker* increasingly accumulates, the original context of the report can be faded-out, and consequently *de-contextualized*, yielding a general or universal discourse (see Akagawa 1995 for the theory of this process).

The other side of the reality-discourse relationship can be created by people’s *naïve statistics*. When someone sees a certain social phenomenon, he or she does not always interpret it precisely; rather he or she tends to misrecognize the relationship of two variables, even if it is a spurious one, as a *causal* one. As pointed out by many literatures dealing with wrong and evil uses of statistics (e.g. Huff 1954), many people (including academic researchers and journalists) are not immune from mistakenly believing that a spurious relation is a causal one. In fact, it is a hard task to properly interpret relationships among more than two variables, without analyzing objectified data. Without such awareness, only two variables especially noticeable for someone (in this paper, “English skills” and “earnings”) can receive exclusive attention, and they are naively estimated and regarded as a causal one. Thus, the interaction between the *de-contextualization* and *naïve statistics* probably leads to the prevalence of the view of English as human capital in the Japanese labor market.

6. Conclusion

This paper statistically examines the notion of English as human capital prevailing in the Japanese labor market. The results show that this is true only for a tiny minority of all labor, and the effect of English skills on earnings are spurious for most of the workers. The gap between the widely-held view and the statistical facts is explained by the mutual effect between the *de-contextualization* and *naïve statistics*. Academia on English language teaching (e.g. applied linguistics and pedagogy) must scrutinize such a fallacious argument rather than accept it without hesitation, and alternatively propose a valid and sound basis for English education in Japan.

Notes

- 1) In some foreign countries (especially English-speaking countries), however, many labor economists have successfully demonstrated the close relationship between English skills and earnings (e.g. Chiswick & Miller 1998, 1999, 2002).
- 2) The data for this secondary analysis, “Working Person Survey, Recruit Works Institute,” was provided by the Social Science Japan Data Archive, Center for Social Research and Data Archive, Institute of Social

Science, The University of Tokyo.

- 3) However, although unsurprisingly, the judgment of their skills is not entirely irrelevant to the test achievements; rather it is well correlated with them: $\tau = .587$ ($p < .001$) for Kendall's rank correlation coefficient with TOEIC scores, $\tau = .545$ ($p < .001$) for that with TOEFL scores, and $\tau = .439$ ($p < .001$) for that with the grades of *Eigo Kentei*
- 4) $N = 1251$ for TOEIC, $N = 421$ for TOEFL, and $N = 4722$ for *Eigo Kentei*.
- 5) Original questionnaire items of the job types and industry are recoded into new categories based on the coding policy of SSM 1995 (Social Stratification and Mobility, a large-scale survey of Japanese society conducted in 1995).

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Appendix 1 Summary statistics

	N	Mean	SD	Max	Min
Income per year (million yen)	11703	5.133	2.851	74.700	0.000
English skills (0 or 1)	12780	0.232	0.422	1.000	0.000
Age	12891	35.599	10.167	59.000	18.000
Years of experience	12891	9.527	8.715	50.000	0.000
Years of schooling	12862	13.641	2.231	21.000	9.000
Gender (0 or 1)					
Female	12891	0.242	0.428	1.000	0.000
Male	12891	0.758	0.428	1.000	0.000
Types of jobs (0 or 1)					
Managerial	12684	0.102	0.302	1.000	0.000
Clerical	12684	0.397	0.489	1.000	0.000
Professional	12684	0.201	0.401	1.000	0.000
Sales	12684	0.030	0.171	1.000	0.000
Blue collar	12684	0.270	0.444	1.000	0.000
Employment status (0 or 1)					
Regular employees	12891	0.910	0.287	1.000	0.000
Contract employees	12891	0.037	0.190	1.000	0.000
Part-time (so-called <i>Furiitaa</i>)	12891	0.026	0.160	1.000	0.000
Part-time (so-called <i>Paato</i>)	12891	0.016	0.124	1.000	0.000
Temporary	12891	0.011	0.104	1.000	0.000
Firm size (0 or 1)					
Has 1-99 employees	12891	0.403	0.490	1.000	0.000
Has 100-999 employees	12891	0.244	0.429	1.000	0.000
Has 1000 employees or more	12891	0.283	0.450	1.000	0.000

Note: The samples above are limited to people who work for a domestic firm and 35 hours per week or more; it excludes 486 respondents of a foreign affiliated firm (along with “Don’t Know” [N = 1171] and “No Answer” [N = 1013]) and 2887 respondents who works less than 35 hours (as well as “No Answer” [N = 59]).