When OLS 1 is estimated without controlling for rank variables, the female coefficient decreases only slightly in absolute value, from -0.071 to -0.069, and remains statistically significant at the 1% significance level. Thus, the gender salary gap is almost unaffected by exclusion of rank variables, indicating that there is a large salary gap *within* each rank, but there are no significant differences in rank attainment between genders. Most of the prior studies from the US and the UK found that much of the gender salary differences stems from the fact that female academics are over-represented in lower ranks (Ward 2001; Ginther 2004), and that there is a little salary gap within each rank. Thus, our results show the entirely opposite pattern. Most of the coefficients for other variables appear to be unaffected by the exclusion of rank variables as well.

In order to study the robustness of the results to our measures of research output, OLS 2 uses a less detailed publication record. In this specification, the publication record is not classified according to the location of the publisher. The coefficient for the female dummy decreases slightly in absolute value, from -0.071 to -0.068, but remains statistically significant at the 1% significance level, for the model with rank variables included. When rank variables are excluded, the coefficient is -0.065 and significant. None of the coefficients for the measures of publications are significant, and, virtually all the other coefficients are unaffected by the change in the definitions of measures of the publication record.

OLS 3 employs more aggregated measures of publications. In OLS 3 we do not distinguish between single authored and co-authored publications as we did in OLS 2. However, before adding the single and co-authored publications in order to obtain the total number of publications, we divide the number of co-authored publications by 2, assuming that the number of co-authors is usually two. When rank variables are included, the coefficient for female is -0.069 and is highly statistically significant. When rank variables are excluded, the

significant effect of refereed article on salary; one extra refereed article would increase annual salary by about 0.8% or 8 thousand yen, evaluated at the sample mean salaries. However, the estimated coefficient for the female dummy was almost unaffected (-0.070) and remains statistically significant at the 1% level. Results are available from the author upon request.

coefficient is -0.067 and is also highly significant. The publications variables do not appear to have a significant effect on salary, on either model, with or without rank variables. The other coefficients are qualitatively and quantitatively similar to OLS 1 and OLS 2.

Finally, OLS 4 uses only the total number of refereed articles (TotRefArticles) as measure of publication record. This model is relevant, since refereed articles have been considered the most accepted measure of research output in the prior literature. The female coefficient is -0.07 when rank variables are included, and it is statistically significant at the 1% significance level. The coefficient for refereed articles is small (0.0003) and statistically insignificant. When rank variables are excluded, the female coefficient is -0.069, and still highly significant. There are no noticeable differences in the coefficients between this model and the previous models.

In sum, all models indicate that there is a significant gender salary gap within each rank. The estimated coefficient for female ranges between -0.068 to -0.071, after controlling for detailed personal, job, institutional, human capital characteristics and rank. The coefficient for female is statistically significant in all models. When rank variables are excluded, the female coefficient decreases only slightly in absolute value, ranging between -0.065 to -0.070, but it remains statistically significant in all models. Thus, our results indicate that there is a significant gender salary gap *within* each rank, but there is no significant gender difference in rank attainment.

8.1.1 Additional results

We would like to discuss below results not reported in Table 3. Figure 1 shows that there is a greater gender gap later in the career, after about 25 years of experience. Such situation could have been caused either by (i) the presence of cohort effects or (ii) because the gender salary gap widens later in the career. In order to check the latter possibility, we included in OLS 1 an interaction term ($Female * Dummy(Experience \geq 25)$). The coefficient for the

interaction term is negative, but not statistically significant. The coefficient for the female dummy drops only slightly in magnitude to -0.067(p-value=0.015). Therefore, we do not find evidence that the gender salary gap widens with experience.

In order to see if the gender salary gap decreases or increases with new cohorts, we included interaction terms between female and cohort dummies. Since the majority of females in our sample entered the academia after 2000 (49% of females), we include in OLS 1 interactions between female, and (Cohort00-03) and (Cohort04). The coefficients for both interaction terms are positive, but insignificant; 0.005(p-value=0.93) and 0.04(p-value=0.57), respectively. Thus, we did not find evidence that the gender gap is decreasing with new cohorts.

We also ran OLS 1 separately for private university and national university samples. The female coefficient is -0.05(p-value=0.23) for the private university sample; and -0.071(p-value=0.14) for the national university sample. Although the gender salary gap appears to be smaller for private universities, the large standard errors make the comparison difficult.

Blackaby et al. (2005) show that the number of outside job offers explains the gender salary gap for the UK academic economists. We do not have information on outside job offers; however, we do have information regarding the number of universities each academic worked at. We thus include a variable to control for the number of previous academic jobs. The average number of universities academics in our sample previously worked at (excluding the current university) is 0.68 for males and 0.53 for females. The coefficient for this variable is insignificant, 0.02(p-value=0.86), and the coefficient for the female dummy does not change appreciably in value and remains significant, 0.071(p-value=0.01).

8.2 Rank attainment equation

We estimate an ordered logit rank attainment model using the same specification as in OLS 1 of the salary equation. Table 4 shows the results. Contrary to our expectations, the

coefficient for the female dummy is positive (0.092), indicating that females are 0.2% *more* likely than males to be a full-professor (see the marginal effect in Table 4). However, the coefficient is insignificant and the effect is small. Thus, there is almost no difference in rank attainment between males and females. Despite the common belief that promotion is a deterministic function of age and experience, the coefficients for age and experience are not statistically significant. Having a PhD would increase the probability of being a professor by 6%, holding all other characteristics constant. The coefficient for (FixTerm) is negative and significant. Most of the coefficients for publications are insignificant, however, working papers published in Japan and co-authored books published in Japan have positive and statistically significant effects on rank attainment.

The logit estimation results showing that age and experience are not significant determinants of promotion are puzzling. As we are concerned that the results might have been affected by our choice of model, we also estimate the same rank equation by using OLS, the second column in Table 4 showing those results. The female coefficient is small and statistically insignificant (0.02), indicating that there is little difference in rank attainment between genders. However, age and academic experience appear to be significant determinants of the rank attainment.

Although the results show that there is not much of a gender difference in rank attainment, it is still useful to compute the total gender salary gap defined in equation (4). Based on the results of the ordered rank equation, the marginal effect is $P(Rank = 2|Female)$-$P(Rank = 2|Male)$=0.002. The coefficient for rank, β, is 0.010 and it is reported in the OLS 5 in Table 3. Thus, the total salary gap is $-0.071 + 0.10 \times 0.002 = -0.0708$. Since, according to our results, females are more likely than males to be full-professors, the gender salary gap reduces when we combine gender salary differences with promotion differences. However, because the differences in rank attainment are small, virtually the entire salary gap can be attributed to the salary gap *within* each rank.

9 Sample selection bias

Self-selection into the academic labor market might be a potential source of bias in the female coefficient. Since we only observe a sample of those working in academia, we cannot directly control for selection bias by using existing techniques such as the Heckit model. Therefore, in this section we attempt to discuss potential directions of the biases by utilizing statistics of PhD graduates in Japan for the period 1969-2007. MEXT Statistics of School Education(*Gakkou Kihon Chousa*) provide basic statistics of PhD graduates in social sciences[28].

Figure 2-A summarizes the number of PhD graduates in social sciences over the period 1969-2007. Figure 2-B summarizes the percentage of PhD graduates in social sciences who joined academia over the period 1969-2007[29]. Figure 2-A shows that, until 1990, there was a very small number of females who graduated from PhD programs in social sciences[30] (until 1990, the average numbers of males and females are 184.36 and 8.77, respectively). As for the percentage of graduates hired by universities, the percentage is much higher for males than females until 1990 (average percentages for males and females are 76.8 and 34.0, respectively). However, the percentages appear to converge after the 1990s. The average percentages for males and females after 1990 are 64.76 and 63.55, respectively. The lower number of females joining academia before the 1990s potentially causes sample selection bias in our estimation. If females who potentially faced lower salary in the academic labor market decided not to join academia, then females in the lower tail of the salary distribution are missing from our sample. This could have caused an underestimation of the gender salary gap. Alternatively, employers might have applied stricter hiring criteria for females prior to 1990, which in turn could have led to fewer females joining academia. Therefore, again,

[28]We do not have data only for those with a degree in economics.

[29]Numbers include those who joined universities. There is no distinction between those who joined four-year and those who joined two-year universities.

[30]The number of female graduates remained small even after 1990, the average numbers of males and females were 201.34 and 61.06, respectively.

females in the lower tail of the salary distribution are potentially missing from our sample, thus, causing underestimation of the gender salary gap. To conclude, although our results provide evidence that females earn about a 7% lower salary than males, this salary gap would be wider if we control for bias due to sample selection.

10 Discussions

After controlling for detailed personal, job, institutional, human capital characteristics and rank, we find that female academic economists earn 7% lower salary than comparable males. Estimations of the salary equations reveal that the coefficient for the female dummy is almost the same, regardless of whether rank variables are included or excluded. The ordered logit estimation of the rank equation reveals that there are no gender differences in rank attainment. Therefore, in our sample, there is a sizable gender salary gap *within* each rank, but there are no gender rank attainment differences. Most of the prior studies from the US and the UK found that much of the gender salary difference stems from the fact that female academics are over-represented in the lower ranks, and that there is little salary gap within each rank. Therefore, our results are entirely opposite the patterns of gender salary gaps in the US and the UK.

While, the precise underlying causes for why such a pattern emerges within Japanese economics departments require further investigation, we offer the following two possible explanations. First, such a pattern might be caused by the institutional setting of Japanese universities. In Japanese universities, salary is determined by the personnel division which consists of non-academic staff, while promotion decisions are typically made at the department level by faculty members[31]. Therefore, those determining salaries are likely to have less accurate information about academic productivity. For example, the personnel division

[31]Exceptions are the academics who are hired and paid from the department budget. Such academics are usually hired on a fixed-term contract and they usually conduct research for a particular project (for example the COE grant funded projects). The effect of this type of contract is captured by the fixed-term dummy.

may not receive the full set of information about academic performance. Moreover, as the personnel divisions consist of non-academics, they may not be capable of assessing some aspects of productivity such as the quality of publications. As Arrow (1973) argues, when performance is difficult to asses, prejudicial beliefs about females' productivity, if these exit, could cause gender salary gap.

Moreover, the problem of noise in performance assessment may be more severe for female academics. For example, because personal division staff may not be capable of assessing academic performance accurately, information about ones academics productivity transmitted through word-of-mouth may affect the assessment. Since females are relatively new in the academic labor market, lack of social network within the university may prevent females' academics achievement to be properly recognized. As Aigner and Cain (1977) predicts, greater noise in the assessment of females' productivity may cause statistical discrimination against females.

In contrast, promotion may be determined based on more accurate information, since it is decided at the department level, by fellow academics. Since the accuracy of information is a central issue in the theory of statistical discrimination, statistical discrimination or prejudicial beliefs about female academic productivity might have manifested only in terms of gender salary difference in our sample. Thus, the pattern we observe - in which there is a gender salary gap but there is no gender gap in rank attainment - might have been caused by the institutional setting that governs salary and promotion determination.

Second, in Japan, academic salary information is seldom public knowledge. Therefore, gender salary differences in academia have seldom been scrutinized. On the other hand, rank attainment gap, after controlling for productivity, can be more easily detected by fellow academics, since rank attainment is usually public information, at least in the academic community, and information regarding the research output of fellow academics is relatively easy to find. In such circumstances, if taste-based discrimination exists, it is more likely

to manifest as a gender salary gap, where discrimination is hard to detect, than as a rank attainment gap where gender differences can be visible.

Although, we have provided two possible explanations for why salary determination is more discriminatory than promotion decisions within Japanese academia, these explanations do not indicate why promotion decisions are fairer within Japan as opposed to the UK or the US. Here we suggest one possible answer to this question. The lack of gender promotion difference within Japanese academia could be a manifestation of a possible seniority-based promotion system. Based on various conversations with academics, there is a common belief that, not only salary, but also promotion is based on seniority, age, and education, thus leaving little room for gender promotion differences. In fact, the OLS estimation of the rank equation (Table 4) suggests that there may be a seniority-based system at work. Besides institutional characteristics, education level, and employment type[32], age and total experience are the only highly statistically significant determinants of rank. One might then raise the question of why there is not such a similar seniority system in the case of salary. The answer to such a question could be that, salary is seldom scrutinized while promotion can be more easily scrutinized; thus, discrimination could more easily manifest in salary than in promotion.

11 Conclusion

By using a data set of academic economists from Japanese universities, we have conducted the first detailed study of the gender salary gap within Japanese academia. Our data contain detailed information about personal, job, institutional and human capital characteristics. Despite the common belief among Japanese economists that there cannot be a gender salary gap within Japanese academia, our empirical results show that females academic economists receive on average 7% less salary than males, after controlling for detailed personal, job,

[32]All productivity measures, except working papers published in Japan, are not significant determinants of rank attainment.

institutional, human capital characteristics, and rank. The coefficient for the female dummy is almost the same, regardless of whether rank variables are included or excluded in the salary equation, suggesting that there is a significant gender salary gap *within* each rank, but there are no differences in rank attainment. These results are interesting as they contrast with the results of many previous studies in the US and the UK, which suggest that significant gender salary differences stem from gender rank attainment differences and that the salary gap disappears once rank is included in the salary equation. We offer two possible explanations for why our results are different. First, our results may stem from the fact that in Japan, salary is decided by personnel divisions consisting of non-academics, while promotion decisions are made at the department level. We argued that this type of institutional setting could cause statistical discrimination that manifests in terms of gender salary differences rather than in gender promotion differences. Second, because gender salary differences within Japanese academia have seldom been scrutinized, taste-based discrimination is also likely to manifest through gender salary differences rather than promotion differences. Other important results show that fixed-term employment is associated with 24% lower annual salary, while private university offers a salary premium of 16%. Refereed articles, the most commonly accepted measures of productivity, have no statistically significant effect on salary.

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Figure 1: Salary Profiles

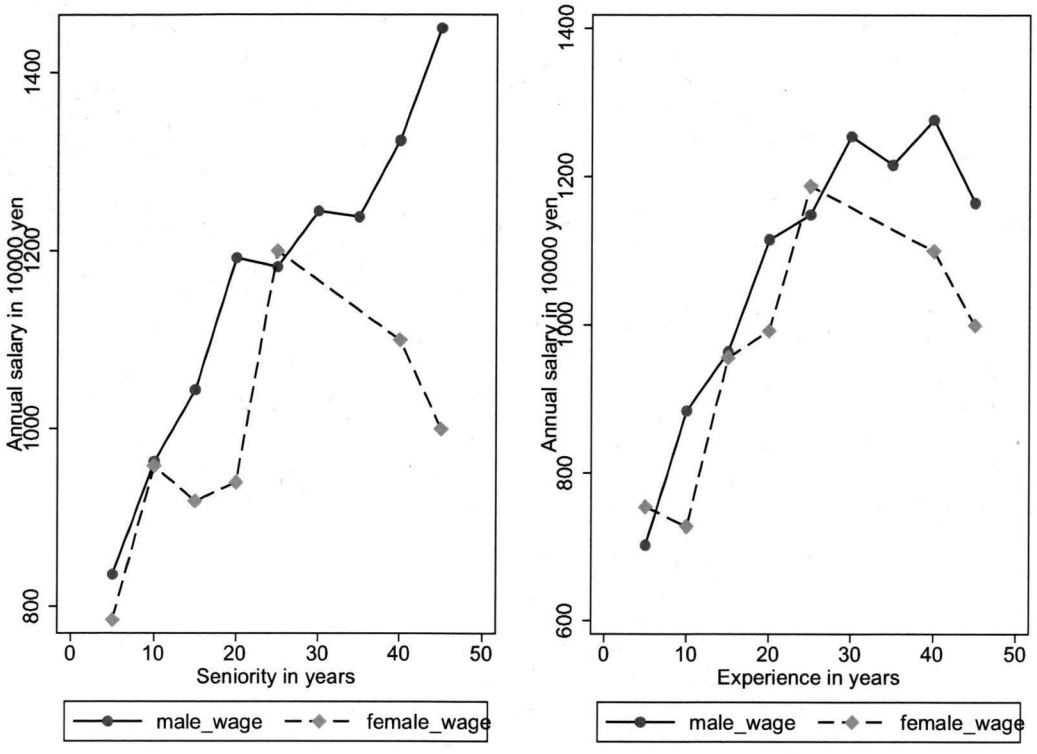
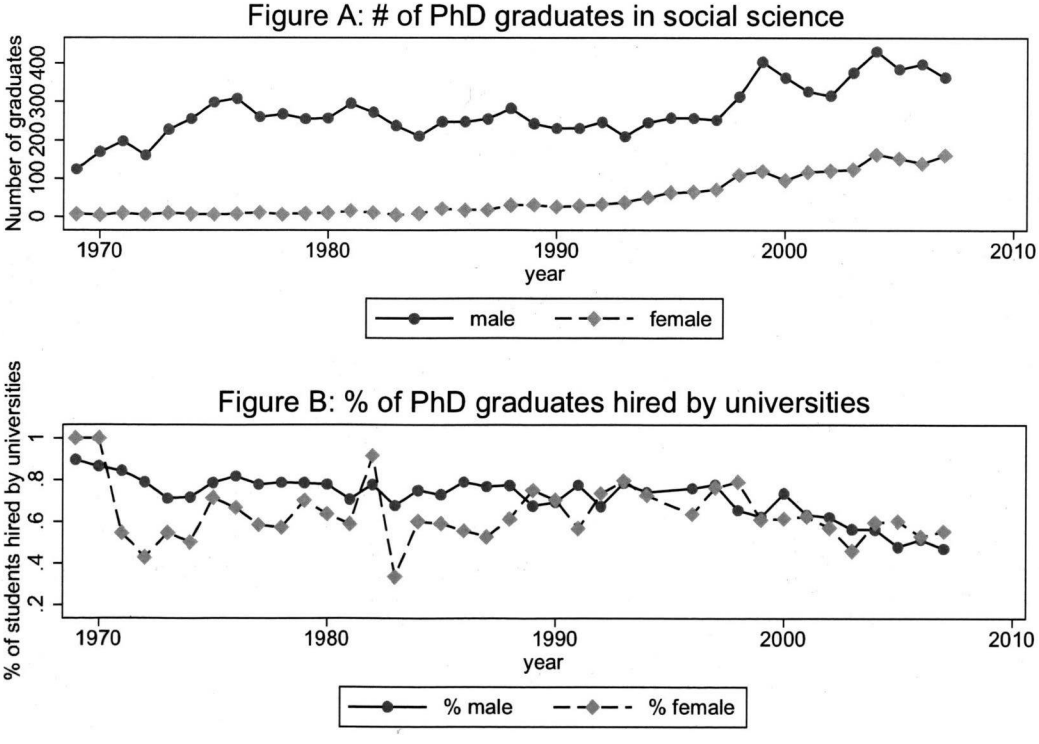


Figure 2: PhD Graduates-Statistics



Source: Based on statistics provided by the MEXT Statistics of School Education (*Gakkou Kihon Chousa*).

Table 1: Definitions of Variables

Name	Definition
Personal characteristics	
Female	1 if female, 0 if male
Age	Age of respondent in 2008
Married	1 if ever married, 0 otherwise
Kids	Number of children under age 6
Job characteristics	
Rank	1 if associate professor, 2 if full-professor, 0 otherwise
AssocProf	1 if associate professor, 0 otherwise
FullProf	1 if full-professor, 0 otherwise
FixTerm	1 if on fixed employment contract, 0 if on non-limited term
Courses	Total number of courses the respondent taught in 2008-2009
Cours1st	Number of courses taught for the first time in 2008-2009
Cours2nd	Number of courses taught for the second time in 2008-2009
Labor	1 if specialized in labor economics, 0 otherwise
FieldMiss	1 if field of specialization is missing observation
Admin	1 if respondent spends more than 50% of working time on administration duties, 0 otherwise
Cohort80	1 if initially hired as academic in the 80s, 0 otherwise
Cohort90	1 if initially hired as academic in the 90s, 0 otherwise
Cohort00-03	1 if initially hired as academic between 2000-2003, 0 otherwise
Cohort04	1 if initially hired as academic from 2004 onward, 0 otherwise
Institutional characteristics	
PrivUniv	1 if academic works in private university, 0 otherwise
PubUniv	1 if academic works in public university, 0 otherwise
BussDep	1 if academic works in business department, 0 otherwise
PhDOffer	1 if the department offers PhD or doctorate (DSc. and DEc.)
IntGrant(in 10,000 yen)	Amount of research grant received from the department in 2007
IntGrMiss	1 if the amount of internal grant is missing observation
COE(in 10,000 yen)	Individual amount of 2007 COE (Center of excellence) grant
COEMiss	1, if the amount of COE is missing
Human capital characteristics	
Seniority	Number of years worked at current employer
Experience	Total number of years worked as academic
NonAExp	Total number of years worked as non-academic
CarBreak	1 if ever took career break, 0 otherwise
PhD	1 if holds a PhD, DSc. or DEc.
PhDAbroad	1 if holds a PhD, DSc. or DEc. from outside Japan
ExtGrant(in 10,000 yen)	Amount of external grant from outside the university in 2007 (the amount is per individual)
ExtGrantMiss	1 if the amount of external grant is missing observation

Table 1 Continued

Name	Definition
	Publication variables below are for the whole career
RefSgJP	Total no. refereed single-authored published in Japan
RefSgUSEU	Total no. refereed single-authored published in US, EUR & other countries
TotRefSg	RefSgJP+RefSgUSEU
RefCoJP	Total no. refereed co-authored published in Japan
RefCoUSEU	Total no. refereed co-authored published in US, EUR & other countries
TotRefCo	RefCoJP+RefCoUSEU
TotRefArticles	TotRefSg+TotRefCo/2
WorkPJP	Total no. of working papers published in Japan
WorkPUSEU	Total no. of working papers published in US, EUR & other countries
TotWorkP	WorkPJP+WorkPUSEU
BookSgJP	Total no. of books single authored published in Japan
BookSgUSEU	Total no. of books single authored published in US, EUR & other countries
TotBookSg	BookSgJP+BookSgUSEU
BookCoJP	Total no. of books co-authored published in Japan
BookCoUSEU	Total no. of books co-authored published in US, EUR & other countries
TotBookCo	BookCoJP+BookCoUSEU
TotBook	TotBookSg+TotBookCo/2
BookEdJP	Total no. of books edited in Japan
BookEdUSEU	Total no. of books edited in the US, EUR & other countries
TotBookEd	BookEdJP+BookEdUSEU
BookChJP	Total no. of book chapters published in Japan
BookChUSEU	Total no. of book chapters published in the US, EUR & other countries
TotBookCh	BookChJP+BookChUSEU
Textbook	Total number of textbooks published in the US, EUR & other countries
PubMiss	1 if the publication record is missing observation
Dependent variable	
Salary(in 10,000 yen)	Total annual salary in 2008

Notes: 1) Doctor of Science (DSc.); Doctor of Economics (DEc.); Europe (EUR) 2) Some respondents did not provide information for (IntGrant), (ExtGrant), (COE) and publications. For such cases, sample averages are imputed. All models include dummy variables which indicate if data were imputed this way (IntGrantMiss; COEMiss; ExtGrantMiss; PubMiss). 3) The number of publications published in 'other countries' is extremely small.

Table 2: Summary Statistics

	All(n=337)		Male(n=279)		Female(n=58)	
Variable name	Mean	Std.	Mean	Std.	Mean	Std.
Personal characteristics						
Female	0.172	0.378	-	-	1	-
Age	49.463	11.317	50.735	11.282	43.345	9.393
Married	0.825	0.381	0.839	0.368	0.759	0.432
Kids	0.157	0.459	0.147	0.437	0.207	0.554
Job characteristics						
Rank	1.546	0.640	1.599	0.615	1.293	0.701
AssocProf	0.294	0.456	0.265	0.442	0.431	0.499
FullProf	0.626	0.485	0.667	0.472	0.431	0.499
FixTerm	0.056	0.230	0.060	0.240	0.034	0.184
Courses	3.024	1.620	2.989	1.691	3.190	1.217
Cours1st	0.467	0.852	0.444	0.818	0.577	0.999
Cours2nd	0.351	0.890	0.336	0.924	0.420	0.706
Labor	0.092	0.289	0.082	0.276	0.138	0.348
FieldMiss	0.036	0.186	0.039	0.195	0.017	0.131
Admin	0.045	0.207	0.047	0.211	0.034	0.184
Cohort80	0.237	0.426	0.251	0.434	0.172	0.381
Cohort90	0.258	0.438	0.251	0.434	0.293	0.459
Cohort00-03	0.151	0.359	0.147	0.355	0.172	0.381
Cohort04	0.160	0.367	0.125	0.332	0.328	0.473
Institutional characteristics						
PrivUniv	0.585	0.494	0.570	0.496	0.655	0.479
PubUniv	0.086	0.281	0.090	0.286	0.069	0.256
BussDep	0.042	0.199	0.039	0.195	0.052	0.223
PhDOffer	0.674	0.470	0.688	0.464	0.603	0.493
IntGrant	52.188	31.569	53.091	32.013	47.845	29.206
IntGrMiss	0.021	0.143	0.025	0.157	0	0
COE	7.086	27.088	7.735	28.543	3.966	18.443
COEMiss	0.045	0.207	0.050	0.219	0.017	0.131
Human capital characteristics						
Seniority	12.739	10.545	13.591	10.708	8.638	8.697
Experience	17.065	11.638	18.332	11.741	10.967	8.970
NonAExp	3.397	7.158	3.434	7.418	3.222	5.798
CarBreak	0.042	0.199	0.025	0.157	0.121	0.329
PhD	0.650	0.478	0.652	0.477	0.638	0.485
PhDAbroad	0.104	0.306	0.111	0.315	0.069	0.256
ExtGrant	69.039	189.411	58.154	90.725	121.401	409.840
ExtGrantMiss	0.151	0.359	0.161	0.368	0.103	0.307
PubMiss	0.068	0.253	0.068	0.252	0.069	0.256

Table 2 Continued

	All(n=337)		Male(n=279)		Female(n=58)	
Variable name	Mean	Std.	Mean	Std.	Mean	Std.
RefSgJP	4.768	9.442	4.902	10.099	4.122	5.254
RefSgUSEU	1.035	2.630	1.081	2.704	0.813	2.252
RefCoJP	2.061	5.747	2.140	5.827	1.677	5.375
RefCoUSEU	1.357	3.808	1.533	4.140	0.507	0.995
WorkPJP	11.449	13.011	12.471	13.679	6.531	7.459
WorkPUSEU	0.099	0.694	0.099	0.723	0.093	0.539
BookSgJP	1.258	2.934	1.301	3.059	1.052	2.248
BookSgUSEU	0.035	0.235	0.038	0.252	0.020	0.131
BooksCoJP	1.995	3.585	2.141	3.757	1.293	2.506
BookCoUSEU	0.105	0.522	0.104	0.510	0.111	0.582
BookEdJP	0.732	1.622	0.799	1.699	0.413	1.134
BookEdUSEU	0.041	0.221	0.042	0.212	0.037	0.262
BookChJP	3.045	5.294	3.128	5.521	2.641	4.038
BookChUSEU	0.334	1.096	0.327	1.027	0.368	1.393
Textbook	0.701	1.521	0.718	1.541	0.617	1.432
Dependent variable						
Salary	1022.300	280.086	1050.007	275.054	889.017	267.610

Table 3: OLS Models (Dependent Variable: Log of Annual Salary)

Variables	OLS 1		OLS 2		OLS 3		OLS 4		OLS 5
	with rank	without rank	with rank	without rank	with rank	without rank	with rank	without rank	with var (Rank)
Female	-0.071***	-0.069***	-0.068***	-0.065**	-0.069***	-0.067***	-0.070***	-0.069***	-0.071***
	(0.027)	(0.027)	(0.027)	(0.027)	(0.027)	(0.027)	(0.027)	(0.027)	(0.028)
AssocProf	0.058	-	0.059	-	0.058	-	0.062	-	-
	(0.050)	-	(0.049)	-	(0.049)	-	(0.048)	-	-
FullProf	0.183***	-	0.187***	-	0.187***	-	0.189***	-	-
	(0.063)	-	(0.063)	-	(0.062)	-	(0.060)	-	-
Rank	-	-	-	-	-	-	-	-	0.100***
	-	-	-	-	-	-	-	-	(0.030)
Personal									
Age	0.032**	0.040***	0.032**	0.040***	0.033**	0.041***	0.036***	0.044***	0.032**
	(0.015)	(0.015)	(0.014)	(0.015)	(0.014)	(0.014)	(0.014)	(0.014)	(0.015)
Age^2	-0.0002*	-0.0003**	-0.0003*	-0.0003**	-0.0003*	-0.0003**	-0.0003**	-0.0004**	-0.0002*
	(0.0002)	(0.0002)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0002)
Married	0.049**	0.048*	0.047**	0.048*	0.050**	0.049**	0.048**	0.047*	0.048*
	(0.025)	(0.025)	(0.025)	(0.025)	(0.025)	(0.025)	(0.024)	(0.025)	(0.025)
Kids	0.031**	0.021*	0.031**	0.021	0.031**	0.020	0.029**	0.017	0.029**
	(0.014)	(0.014)	(0.014)	(0.014)	(0.013)	(0.014)	(0.014)	(0.014)	(0.014)
Job									
FixTerm	-0.243***	-0.266***	-0.240***	-0.261***	-0.241***	-0.262***	-0.238***	-0.261***	-0.229***
	(0.070)	(0.075)	(0.071)	(0.076)	(0.071)	(0.076)	(0.070)	(0.075)	(0.068)
Courses	-0.011*	-0.010	-0.011*	-0.009	-0.011*	-0.009	-0.010*	-0.009	-0.011*
	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.007)	(0.006)	(0.006)
Cours1st	-0.010	-0.011	-0.009	-0.009	-0.010	-0.010	-0.010	-0.011	-0.009
	(0.015)	(0.015)	(0.015)	(0.015)	(0.014)	(0.015)	(0.015)	(0.015)	(0.015)
Cours2nd	0.015	0.013	0.014	0.012	0.013	0.011	0.015	0.012	0.017
	(0.012)	(0.011)	(0.012)	(0.011)	(0.012)	(0.011)	(0.012)	(0.011)	(0.013)

Table 3 Continued

Variables	OLS 1		OLS 2		OLS 3		OLS 4		OLS 5
	with rank	without rank	with rank	without rank	with rank	without rank	with rank	without rank	with var (Rank)
Labor	0.069**	0.073**	0.068**	0.073**	0.068**	0.072**	0.070**	0.072**	0.069**
	(0.034)	(0.035)	(0.033)	(0.035)	(0.033)	(0.034)	(0.032)	(0.033)	(0.034)
Admin	0.015	0.028	0.018	0.030	0.021	0.034	0.019	0.034	0.017
	(0.041)	(0.044)	(0.041)	(0.043)	(0.040)	(0.043)	(0.040)	(0.041)	(0.042)
Cohort80	0.008	0.012	0.014	0.019	0.015	0.021	0.021	0.028	0.010
	(0.037)	(0.038)	(0.038)	(0.039)	(0.038)	(0.039)	(0.039)	(0.040)	(0.037)
Cohort90	-0.026	-0.011	-0.014	0.004	-0.012	0.007	-0.005	0.016	-0.028
	(0.063)	(0.064)	(0.063)	(0.065)	(0.064)	(0.065)	(0.064)	(0.065)	(0.063)
Cohort00-03	0.047	0.045	0.062	0.063	0.063	0.063	0.067	0.073	0.037
	(0.084)	(0.086)	(0.085)	(0.087)	(0.085)	(0.086)	(0.086)	(0.087)	(0.083)
Cohort04	-0.022	-0.030	0.0001	-0.005	0.0005	-0.005	0.013	0.009	-0.017
	(0.103)	(0.106)	(0.102)	(0.105)	(0.102)	(0.104)	(0.103)	(0.105)	(0.102)
Institutional									
PrivUniv	0.161***	0.166***	0.163***	0.168***	0.163***	0.169***	0.162***	0.169***	0.162***
	(0.020)	(0.020)	(0.019)	(0.019)	(0.019)	(0.019)	(0.018)	(0.018)	(0.020)
PubUniv	-0.013	-0.007	-0.017	-0.012	-0.017	-0.010	-0.027	-0.019	-0.011
	(0.028)	(0.028)	(0.028)	(0.028)	(0.027)	(0.027)	(0.028)	(0.028)	(0.028)
BussDep	0.069	0.097	0.059	0.087	0.058	0.086	0.045	0.071	0.071
	(0.065)	(0.071)	(0.064)	(0.070)	(0.064)	(0.069)	(0.064)	(0.069)	(0.067)
PhDOffer	0.073***	0.073***	0.077***	0.077***	0.077***	0.077***	0.084***	0.085***	0.075***
	(0.020)	(0.021)	(0.020)	(0.020)	(0.020)	(0.020)	(0.020)	(0.020)	(0.020)
IntGrant	-0.0001	-0.00005	-0.0001	-0.00007	-0.00009	-0.00004	-0.0001	-0.00008	-0.0001
	(0.0003)	(0.0003)	(0.0003)	(0.0003)	(0.0003)	(0.0003)	(0.0003)	(0.0003)	(0.0003)
COE	0.0003	0.0002	0.0004	0.0004	0.0004	0.0004	0.0004	0.0003	0.0003
	(0.0003)	(0.0003)	(0.0003)	(0.0003)	(0.0003)	(0.0003)	(0.0003)	(0.0003)	(0.0003)

Table 3 Continued

Variables	OLS 1		OLS 2		OLS 3		OLS 4	OLS 5	
	with rank	without rank	with rank	without rank	with rank	without rank	with rank	without rank	with var (Rank)
Human capital									
Seniority	-0.0008	-0.0009	-0.00002	0.0001	-0.0003	-0.0002	0.002	0.002	-0.001
	(0.005)	(0.005)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.005)
$Seniority^2$	0.0002	0.0002	0.0001	0.0001	0.0002	0.0001	0.00009	0.00007	0.0002
	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)
Experience	0.009	0.015*	0.010	0.017*	0.010	0.016*	0.009	0.015*	0.010
	(0.010)	(0.010)	(0.009)	(0.010)	(0.009)	(0.009)	(0.009)	(0.009)	(0.010)
$Experience^2$	-0.0002	-0.0003*	-0.0002	-0.0004*	-0.0002	-0.0003*	-0.0002	-0.0003	-0.0003
	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0002)
NonAExp	0.005	0.005	0.006	0.006	0.006	0.005	0.006	0.006	0.006
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
$NonAExp^2$	-0.0002	-0.0002	-0.0002	-0.0002	-0.0002	-0.0001	-0.0002	-0.0001	-0.0002
	(0.0002)	(0.0002)	(0.0001)	(0.0002)	(0.0001)	(0.0002)	(0.0001)	(0.0002)	(0.0001)
CarBreak	-0.075	-0.077	-0.073	-0.075	-0.072	-0.073	-0.069	-0.071	-0.075
	(0.060)	(0.065)	(0.060)	(0.064)	(0.059)	(0.064)	(0.060)	(0.065)	(0.060)
PhD	0.023	0.032*	0.022	0.031*	0.023	0.032*	0.029	0.039**	0.022
	(0.019)	(0.019)	(0.019)	(0.019)	(0.019)	(0.019)	(0.019)	(0.019)	(0.020)
PhDAbroad	0.056**	0.056**	0.068***	0.069**	0.065**	0.065**	0.057**	0.055**	0.055**
	(0.028)	(0.029)	(0.028)	(0.029)	(0.027)	(0.028)	(0.026)	(0.027)	(0.027)
ExtGrant	0.0001***	0.0001***	0.00009***	0.0001***	0.00009***	0.0001***	0.0001***	0.0001***	0.0001***
	(0.00004)	(0.00004)	(0.00004)	(0.00004)	(0.00004)	(0.00004)	(0.00003)	(0.00004)	(0.00004)
RefSgJP	-0.0003	-0.0005	-	-	-	-	-	-	-0.0003
	(0.001)	(0.001)	-	-	-	-	-	-	(0.001)
RefSgUSEU	0.005	0.005	-	-	-	-	-	-	0.005
	(0.006)	(0.006)	-	-	-	-	-	-	(0.006)

Table 3 Continued

VariableS	OLS 1		OLS 2		OLS 3		OLS 4		OLS 5
	with rank	without rank	with rank	without rank	with rank	without rank	with rank	without rank	with var (Rank)
TotRefSg	-	-	0.0006	0.0005	-	-	-	-	-
	-	-	(0.0008)	(0.0008)	-	-	-	-	-
RefCoJP	-0.0008	-0.0006	-	-	-	-	-	-	-0.0007
	(0.002)	(0.002)	-	-	-	-	-	-	(0.002)
RefCoUSEU	-0.002	-0.002	-	-	-	-	-	-	-0.002
	(0.003)	(0.003)	-	-	-	-	-	-	(0.003)
TotRefCo	-	-	-0.0006	-0.0004	-	-	-	-	-
	-	-	(0.001)	(0.001)	-	-	-	-	-
TotRefArticles	-	-	-	-	0.0002	0.0001	0.0003	0.0003	-
	-	-	-	-	(0.0007)	(0.0007)	(0.0006)	(0.0006)	-
WorkPJP	0.001	0.002**	-	-	-	-	-	-	0.001
	(0.0008)	(0.0008)	-	-	-	-	-	-	(0.0008)
WorkPUSEU	-0.016	-0.016	-	-	-	-	-	-	-0.016
	(0.011)	(0.011)	-	-	-	-	-	-	(0.011)
TotWorkP	-	-	0.0007	0.001*	0.0007	0.001*	-	-	-
	-	-	(0.0008)	(0.0008)	(0.0008)	(0.0008)	-	-	-
BookSgJP	0.00007	0.0004	-	-	-	-	-	-	0.00007
	(0.003)	(0.003)	-	-	-	-	-	-	(0.003)
BookSgUSEU	0.010	0.011	-	-	-	-	-	-	0.011
	(0.026)	(0.026)	-	-	-	-	-	-	(0.026)
TotBookSg	-	-	-0.0009	-0.0006	-	-	-	-	-
	-	-	(0.003)	(0.003)	-	-	-	-	-
BookCoJP	0.002	0.003	-	-	-	-	-	-	0.003
	(0.003)	(0.003)	-	-	-	-	-	-	(0.003)
BookCoUSEU	0.016	0.020*	-	-	-	-	-	-	0.017
	(0.014)	(0.013)	-	-	-	-	-	-	(0.014)