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The effect of refereed articles on salary, promotion and labor mobility: The case of Japanese economists

Ana Maria Takahashi
University of Utah, US

Shingo Takahashi
International University of Japan, Japan

Abstract

By using a data set of academic economists from Japanese universities, we estimated the effect of refereed articles on salary, promotion and labor mobility. Results show no effect of refereed articles on salary and on promotion. However, there is a statistically significant effect of refereed articles on labor mobility, though the magnitude of the effect is rather small. Publishing one additional refereed article increases the probability that an academic has worked in exactly two universities by 0.4%. In addition, publishing one additional refereed article in the US or Europe increases the probability that an academic has worked in exactly two universities by 1%. Refereed articles published in Japan have no statistically significant impact on the probability of working in more universities. We conclude that publishing refereed articles does not reward Japanese economists by a direct increase in salary and accelerated promotion. Our results are thus consistent with the beliefs within Japanese academia that publications do not affect salary or promotion.

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1. Introduction

When you talk to economists from Japanese universities you typically hear that articles published in refereed journals do not count for salary and promotion. Japanese economists commonly believe that salary is a deterministic function of age, education and experience, and that promotion is automatically done based on age, education and experience.[1] However, there has been no study that investigates the veracity of these beliefs. Since the literature on academics from the US and the UK finds rewards for publishing refereed articles, it is difficult to believe that refereed articles have no tangible rewards, like an increase in salary or accelerated promotion within Japanese academia.

The most tangible rewards for publishing refereed articles would be an increase in salary and an increase in the probability of promotion. However, publishing refereed articles could also have other tangible rewards such as an increase in labor mobility. An increase in labor mobility could allow academics to move to more prestigious universities or to universities that offer a better research environment. In addition, an increase in labor mobility offers more flexibility in choosing the place to live. Therefore, in this paper we estimate the effect of publishing refereed articles on salary, promotion, and labor mobility, in order to investigate whether or not refereed articles have any tangible rewards within the academic labor market in Japan. We use a data set that we collected via a mail survey administered in 2008. We surveyed only academic economists. For each academic in our sample, our data contain detailed personal, job, institutional and human capital characteristics that allow us to control for various determinants of salary, promotion, and mobility within Japanese academia.

To preview our results, we found no effect of refereed articles on salary and on promotion; a result consistent with the belief that publications do not generally affect salary and promotion within Japanese academia. However, we found a statistically significant effect of refereed articles on labor mobility. Publishing refereed articles increases labor mobility, though the effect is rather small.

The paper proceeds as follows: Section 2 discusses relevant literature. Section 3 describes the data. Section 4 deals with the effect of refereed articles on salary. Section 5 examines the effect of refereed articles on rank attainment. Section 6 investigates the effect of refereed articles on labor mobility, and Section 7 concludes.

2. Literature review

Why do academics publish refereed articles? According to the literature, there are several types of returns that may be realized by publishing refereed articles.[2]

First, empirical research documents that refereed articles bring an increase in salary for academics within the US and the UK academia. Katz (1973) finds that one article increased annual salary by $18 and one top journal article increased annual salary by $102 in 1969, when the average annual male salary was $16,078. Broder (1993), in a study of professional achievements and gender salary differences of academic economists in the US, shows that there is an increase in salary by 3.4% for every additional top journal article, indicating that an article in a top journal

[1] According to interviews conducted by the authors. We interviewed several academics and representatives of the Association of Private Universities of Japan (*Nihon Shiritsu Daigaku Kyoukai*) and of the Faculty and Staff Union of Japanese Universities (*Zenkouku Daigaku Kosen Kyoshokuin Kumiai*).

[2] Note that non-monetary returns like praise and prestige, advancement of knowledge, etc resulting from publishing refereed articles are not considered in this paper.

can be worth as much a $2,129 per year at the average annual salary level. Ward (2001) utilizes a sample of UK academics to investigate the gender salary gap. Her results show that publishing one additional refereed article increases salary by 0.2%. Blackaby et al. (2005) also find a statistically significant effect of refereed articles weighted by quality on the salary of UK academics. Moore et al. (2007), in a comparative study of academic pay within US and UK economics departments, find that refereed articles published in top-tier and second-tier economic journals yield rewards in terms of salary. An additional top-tier article would increase annual salary by 2.5% in the US and by 1.1% in the UK, while an additional second-tier article raises annual salary by 0.7% in the US.

Second, within US and UK universities, academics are rewarded for publishing refereed articles in terms of promotion. Ginther and Khan (2004), by using a sample of economists from the American Economic Association (AEA) examine gender difference in the probability of attaining tenure at ten years post PhD. They find that the probability of being promoted to tenure is 3.7% higher for academics who publish in top-ten journals. Publications in other type of journals do not significantly affect the probability of achieving tenure. Similarly, Ginther and Hayes (2003) using a sample from the US Survey of Doctorate Recipients (SDR) in humanities estimate gender promotion differences. They show that an increase in the number of refereed articles increases the probability of achieving tenure by 4.1% for all cohorts in the sample, while for the 1980-89 cohort it increases the probability of achieving tenure by as much as 7.9%. McDowell et al. (2001), by using a sample of economists from the AEA directory show that refereed articles are significant determinants of the probability of promotion. Their results show that an increase in the number of 'effective' refereed articles (refereed articles weighted by quality) increases the probability of promotion to full professor by 3%.

Third, faculty mobility might be affected through research productivity. Ault et al. (1979) studied labor market mobility for academic economists from the US. According to their results, publishing one extra refereed article in a quality journal increases the institutional rating of the second job by 0.3%. They argue that refereed articles are the principal means by which an academic can move to a more prestigious department. Allison and Long (1987) analyzed the interuniversity mobility of academic scientists in the US. They found that the number of refereed articles is one of the determinants of the prestige of the next destination department. A change from zero to sixteen refereed articles brings an increase in destination prestige of 40 points on a scale of 500. Coupe et al. (2005) also find that the probability of upward mobility is positively related to the past production of refereed articles. However, the effect of refereed articles on upward mobility is very small; publishing one extra refereed article increases the probability of moving to a higher rank university by only 0.04%.

3. Data

The data utilized in this project were obtained from a survey we administered via a postal questionnaire. Our survey method is presented below.

First, from the website of the Japanese Ministry of Education, Culture, Sports, Science and Technology (MEXT) we obtained an official list of all four-year universities in Japan (747 universities). We accessed each university website provided in the list in order to collect the names of academics in economics and economics-related departments.[3] We were able to collect 4353 names from 132 universities.[4] Next, from the 4353 collected names, we selected 1863 academics

[3]Often economics departments are combined with business departments to form a larger department. In this case, names from the business departments were also included.

[4]Many Japanese economics departments also employ faculty specializing in language education; we eliminated

and mailed them questionnaires directly. These data were initially collected to investigate various gender differences within the academic labor market in Japan; thus, we over sampled females. We selected all the female-sounding names (287 names); however, the rest of the selected academics (1576 names) were randomly chosen. Questionnaires were sent from April to June 2008 and participants could reply either by mail or online. Two reminders were sent out by mail in July and August, and an additional reminder was sent to approximately 600 academics by email. At the end of our survey period, we received 363 responses (252 by mail and 111 online). Thus, we achieved a rate of response of 19.5%. However, the usable sample is 337.

Regarding the representativeness of our data one may have a number of concerns. First, one may be concerned with over representation of full professors due to non-random responses, since in typical mail surveys of academics such a problem is not uncommon (Blackaby et al. 2005; Moore et al. 2007). In our sample, 63% of respondents are full professors. However, according to the MEXT Statistics of School Education data 60% of academics in economics departments in Japan were full professors in 2007. Thus, the difference is relatively minor for our sample.[5] Second, one may be concerned with the under sampling of private universities. We under sampled private universities because the MEXT does not provide website links for a significant number of private universities. According to the MEXT Statistics of School Education, 73% of academic economists work in private universities while only 59% of our sample works in private universities. Finally, the percentage of females in our sample is 16.9%. Based on the statistics provided by the MEXT Statistics of School Education, the percentage of females in economics departments in Japan was 12.6% in 2007; thus, we over sampled females. Over sampling of females was purposely done, as already explained. Over sampling of minority groups is not uncommon in the literature. For example, McDowell et al. (2001) used data which over sampled females.

4. Estimation of the effect of refereed articles on salary

4.1 Empirical method

The effect of refereed articles on salary is estimated by using a standard earning equation:

$$Log(Annual\ Salary)_i = \alpha' Z_i + \beta(Articles)_i + \epsilon_i, \tag{1}$$

where Z_i is the vector of variables that directly affect annual salary (i.e., human capital characteristics and other objective salary determinants). $(Articles)$ is the total number of refereed articles published over the academic career. We also estimated the same model where we separated articles published in Japan ($ArticlesJp$) and the US and Europe ($ArticlesUs$).

It is likely that the current base salary is determined by the previous year's academic performance while the current year bonus is determined by the current year's performance. Therefore, ideally, the salary equation should contain the lag of (Articles) as well as the current year's (Articles). Due to the cross-sectional nature of our data, we could not include the lag of (Articles). Since the current year's (Articles) are correlated with the lag of (Articles), the current year's (Articles) would capture the effect of lag of (Articles) as well, but only partially. Thus, our model may understate the combined effects of the current year's (Articles) and the lag of (Articles).

such faculty where possible. In addition, we excluded universities that accept only female students.

[5] In Blackaby et al. (2005) 28.5% of their sample are full professors, while the representation of full professors in the population is only 18.8% (UK)(p.3). Similarly, Moore et al. (2007) have 37.3% as full professors in their sample from the UK, while the representation of full professors in the population is only 18.8% (p.4-5).

Table 1 shows the definitions of our variables. The dependent variable is the logarithm of the total annual salary. Explanatory variables include various personal, job, institutional, and human capital characteristics. (*Articles*) is the variable of our interest and it includes the total number of refereed articles published over the academic career. The number of refereed articles is the most accepted measure of scholarly research output within academia (Taylor et al., 2006). The number of co-authored refereed articles is divided by two, assuming that most of co-authored articles have two authors. In the prior literature, the quality of research output is controlled for by distinguishing articles published in top journals. In our survey, in order to preserve the anonymity of the respondents, we did not ask the name of the journal of publication. Therefore, we cannot directly adjust for the quality of the article. However, we asked the survey participants to report the number of publications according to the location of the publisher. Thus, each type of article is further divided into subtypes depending on whether it was published in Japan or in the US/Europe. We expect that articles published in the US or Europe are more cited than those published in Japan since these are published mostly in Japanese. Thus, we can capture potential differences in the impact of the refereed articles.

One potential problem in our estimation is that the number of articles may be endogenous. For example, omitted unobserved characteristics such as the ability of academics maybe be correlated with the number of articles. Moreover, the number of articles may be reported with errors which would cause error-in-variable biases. Although we have a limited number of instruments (father's education and mother's education), we address the endogeneity issues in a two stage least square procedure (2SLS).

Summary statistics. Table 2 includes a summary statistics for the variables included in all estimations. The average number of total refereed articles published over the academic career is 7.5; the average number published in Japan is 5.7 and the average number published in the US, Europe and other countries combined is 1.7. Thus, the academics in our sample publish more refereed articles in Japan than in the US and Europe. 63% of our sample are full professors while 29% are associate professors. 65% of academics in our sample have a PhD degree. The greatest number of academics (18%) specialize in history of economic thought 13% of academics specialize in business, 7% in international economics, and 8% in labor economics.

4.2 Estimation results

Let us first discuss the endogeneity in the number of articles. We use father's education, mother's education, mother's education squared, and mother's education times father's education as instrumental variables in a two stage least square procedure (2SLS).[6] Column one in Table 6 shows the first stage results. All the coefficients for the excluded instruments are highly statistically significant, except for father's education which is only marginally significant. The F-test rejects the null hypothesis that the coefficients for the excluded instruments are jointly equal to zero at the 5% significance level (p-value=0.039). Thus, the instruments appear to be significant determinants of the refereed articles. Hansen's overidentification test statistics is 6.53, with degrees of freedom equal to 3 (p-value=0.088). Thus, the overindentification test does not reject the validity of the instruments at the 5% significance level (that is, instruments are uncorrelated with the error terms). Therefore, our choice of instruments appears to be correct. Based on the validity of the instruments, we test the possible exogeneity of the refereed articles. The test is the C-statistic test which follows $\chi^2_{(1)}$ (Hayashi 2000:220). The test statistic is 0.61 (p-value=0.432). Therefore,

[6]Definitions of the instrumental variables are presented in Table 1. Preliminary results indicated that father's education squared is not significant, thus we excluded this variable from the model.

we do not reject the exogeneity of the refereed articles, thus the test statistic *does not support* the use of the 2SLS. Therefore, in the following we base our discussion on the OLS results.

We estimated two OLS models. OLS 1 uses the total number of articles, (*Articles*), as our publication variable. OLS 2 differentiates between articles published in Japan, (*ArticlesJp*), and articles published in the US and Europe, (*ArticlesUs*). The first column in Table 3 presents the results of the model OLS 1. The coefficient for the refereed articles variable is small (0.0007) and statistically insignificant, indicating that refereed articles have no effect on the salary within the economics departments in Japan. The second column in Table 3 presents the results of OLS 2. The coefficients for (*ArticlesJp*) and (*ArticlesUs*) are small, (0.0005) and (0.002) respectively, and not statistically significant. Thus, neither type of article has an effect on salary.

It should be noted that our publication measures are not fully 'quality adjusted', although we have attempted to capture the quality differences in publications by separating articles published in Japan and in the US/Europe. However, there are still large differences in the article quality within each region. Thus, our results may understate the effect of 'quality adjusted' publications on salary. However, many previous studies for the US and UK academia used quality *un-adjusted* articles, but found a positive and statistically significant effect of publications on salary (Monks and Robinson 2000; Ward 2001). Thus, our results strongly indicate that academic economists in Japan are rewarded much less than the economists in the US and the UK for publishing refereed articles.

Our estimation results show that there is a 6% salary premium for those who obtained a PhD from overseas. In addition, there are some statistically significant effects of the areas of specialization. It is possible that publishing refereed articles is indirectly rewarded in terms of the salary premiums for a PhD from overseas or for areas of specialization. In order to check this possibility, we dropped (PhDOverseas) and all the areas dummies from the OLS 1 and OLS 2. In OLS 1, the coefficient for (Articles) is unchanged at 0.001(p-value=0.37). In OLS 2, the coefficients for (ArticlesJp) and (ArticlesUs) are almost unchanged at 0.0004(p-value=0.61) and 0.002(p-value=0.53), respectively. In fact, the correlation between the publication measures and the dropped variables is very weak.[7]

Although we rejected the endogeneity of articles, it is still interesting to look at the coefficients of the 2SLS estimation. Column three in Table 3 shows the results. We estimated the 2SLS model only for the total number of refereed articles. The coefficient for (*Articles*) is small and statistically insignificant (0.004). The other coefficients do not change appreciably when compared with OLS 1 and OLS 2.

In sum, our results indicate that refereed articles have no effect on salary. Thus, our results are consistent with the commonly held beliefs among Japanese academics that refereed articles are not determinants of salary.

5. Estimation of the effect of refereed articles on rank attainment

5.1 Empirical method

In order to estimate the effect of refereed articles on the probability of achieving a certain rank we use an ordered probit rank equation. Let (Rank) be the rank variable, such that (Rank)=1 if associate professor, 2 if full professor and 0 if assistant professor or lecturer. Then, we estimate

[7]The correlation between (ArticlesUs) and (PhDOverseas) is 0.25. The correlation between (ArticlesUs) and (International) is 0.25. Any other correlations are less than 10%.

the following equation by using an ordered probit model.

$$y_i^* = \alpha' Z_i + \theta(Articles)_i + \mu_i, \tag{2}$$

where y^* is a latent variable such that, $(Rank)_i$=0 if $y_i^* < c_1$, $(Rank)_i$=1 if $c_1 \leq y_i^* < c_2$, and $(Rank)_i$=2 if $y_i^* \geq c_2$. Z_i is the vector of variables that directly affect promotion probabilities. In the rank equation we use the same explanatory variables as in the salary equation, assuming that the variables that affect salary would also affect promotion. Since articles may be endogeneous in the rank equation, we also estimate the rank equation in a linear two stage least square estimation with parents' education as instruments.[8]

5.2 Estimation results

Let us first discuss the endogeneity in the number of articles. Results of the first stage regression for the linear 2SLS rank attainment regression are presented in column two in Table 6. Two coefficients for the excluded instruments are statistically significant at the 5% significance level, and two coefficients are only marginally significant. The F-test rejects the null hypothesis that the coefficients for the excluded instruments are jointly equal to zero at the 5% significance level (p-value=0.052). Thus, the instruments appear to be significant determinants of the refereed articles. Hansen's overidentification test statistics is 1.67, with degree of freedom equal to 3 (p-value=0.641). Thus, the overindentification test does not reject the validity of the instruments at the 5% significance level. Therefore, our choice of instruments appears to be correct. Based on the validity of the instruments, we test the possible exogeneity of the refereed articles. The test statistic is 2.13 (p-value=0.144). Therefore, we do not reject the exogeneity of the refereed articles, thus the result *does not support* the use of the 2SLS. As a result, we will treat articles in the ordered probit model as exogenous.

We estimate two ordered probit models. Ordered Probit 1 uses the total number of articles as our publication variable while Ordered Probit 2 distinguishes between articles published in Japan and articles published in the US and Europe. Table 4 shows the results. In Ordered Probit 1, the coefficient for the refereed article is small (0.005) and it is not statistically significant, indicating that refereed articles do not have an effect on rank attainment. In addition, the marginal effect is also small; publishing one additional refereed article increases the probability of promotion by only 0.3%. In Ordered Probit 2, we estimate the model again by including $(ArticlesJp)$ and $(ArticlesUs)$. Results are presented in column two in Table 4. The coefficients for $(ArticlesJp)$ and $(ArticlesUs)$ are (0.006) and (0.002) respectively, and they are not statistically significant at any conventional significance level. The marginal effects indicate that publishing one additional article in Japan increases the probability of promotion by only 0.2% and publishing one additional article in the US and Europe increases the probability of promotion by only 0.6%; however, the effects are not statistically significant. Thus, neither refereed articles published in US/Europe nor refereed articles published in Japan have an effect on rank attainment.

Although we rejected the endogeneity of articles, it is still interesting to look at the coefficients of the linear 2SLS estimation. Column three in Table 4 shows the results. In the linear 2SLS estimation many coefficients that are significant in the ordered probit models are not statistically significant anymore. The coefficient for $(Articles)$ is small and statistically insignificant (0.012).

In sum, our results indicate that refereed articles have no effect on rank attainment. Thus, our results are consistent with the commonly held beliefs among Japanese academics that refereed articles are not determinants of promotion.

[8]Note that, this is a linear estimation, while the ordered probit is non-linear.

6. Estimation of the effect of refereed articles on labor mobility

6.1 Empirical method

The effect of refereed articles on labor mobility is estimated by using an ordered probit model. Let $(\#Univ\_worked)_i$ be the variable that shows the number of universities an academic has previously been employed, including the current university. Then, the model is written as:

$$q_i^* = \varphi' X_i + \gamma(Articles) + \nu_i, \tag{3}$$

q^* is a latent variable such that, $(\#Univ\_worked)_i$=1 if $q_i^* < c_1$, $(\#Univ\_worked)_i$=k if $c_{k-1} \leq q_i^* < c_k$, and $(\#Univ\_worked)_i$=5 if $q_i^* \geq c_4$ (the maximum number of universities is 5). X_i is the vector of variables that directly affect the number of universities at which an academic has been previously employed. The explanatory variables included in the labor mobility equation are mostly similar to the salary equation, except that we do not include variables that are current institution-specific (for example, fixed-term contract, the teaching load, the type of current university, the type of the current department, the characteristics of the current department, personal grants, and seniority). Since the number of refereed articles could be endogeneous in the labor mobility equation, we also estimate a linear labor mobility equation in a linear two stage least square procedure (2SLS) with $(\#Univ\_worked)$ as the dependent variable.

One caveat of our data is that we cannot distinguish between voluntary turnover and forced turnover. As a result, our labor mobility variable $(\#Univ\_worked)$ may contain job changes that are not necessarily a 'reward' from the point of view of academics. After providing our main empirical results, we will provide our assessment of the degree to which our labor mobility variable is 'contaminated' with the cases of forced turnover.

6.2 Estimation results

Results of the first stage estimation are presented in column three in Table 5. The F-test rejects the null hypothesis that the coefficients for the excluded instruments are jointly equal to zero at the 5% significance level (p-value=0.044). Thus, the instruments appear to be significant determinants of the refereed articles. Hansen's overidentification test statistics is 0.94, with degrees of freedom equal to 3 (p-value=0.815). Thus, the overindentification test does not reject the validity of the instruments at the 5% significance level. Therefore, our choice of instruments appears to be correct. Based on the validity of the instruments, we test the possible exogeneity of the refereed articles. The test statistic is 0.13 (p-value=0.717). Therefore, we do not reject the exogeneity of the refereed articles, thus the result *does not support* the use of the 2SLS. Thus, we treat refereed articles as an exogenous variable in the ordered probit equation.

Table 5 shows the ordered probit estimations results. We estimated two ordered probit models. In Ordered Probit 1, where we control for the total number of refereed articles, the coefficient for $(Articles)$ is positive (0.017) and highly statistically significant. The marginal effect indicates that publishing one additional refereed article increases the probability that an academic has worked in exactly two universities by 0.4%, in exactly three universities by 0.3% and in exactly four universities by 0.03%. In Ordered Probit 2, where the model is estimated with controls for $(ArticlesJp)$ and $(ArticlesUs)$, the coefficient for articles published in the US and Europe is statistically significant and positive (0.043). Refereed articles published in Japan have no significant impact on labor mobility. The marginal effect indicates that publishing one additional refereed article in the US or Europe increases the probability that an academic has worked in exactly two universities by 1%, in exactly three universities by 0.6% and in exactly four universities

by 0.06%. Thus, although the effect of refereed articles is statistically significant in both models, the marginal effect appears to be small. In order to further examine the effect of the articles published in the US and Europe on the labor mobility we have compared the probability that an average academic (with average ArticlesUS=1.75) works at exactly two universities with the probability of the academic whose publication rate is at the 90th percentile (ArticleUS=4).[9] We hold all the other variables constant at averages. The probability for the average academic is 34% while the probability for the academic at the 90th percentile publication rate is 36%. Thus, the difference appears to be minor.

Although we rejected the endogeneity of articles, it is still interesting to look at the coefficients of the linear 2SLS estimation. Column three in Table 5 shows the results. The significant coefficients of the linear 2SLS are similar to those of the ordered probit models. In the 2SLS estimation, the coefficient for (*Articles*) is small and statistically insignificant.

As mentioned above, our labor mobility variable, (*#Univ_worked*), could be 'contaminated' with job changes resulted from forced turnover. Now we provide our assessment regarding the degree of such a contamination in our data. Our assessment is that the contamination is not high enough to alter the interpretation of the main results presented above. First, unlike in the US, Japanese universities rarely have the 'up-or-out' tenure track system. Most of the academics are hired on life-time employment basis. In fact, 94.4% of our respondents are currently hired on life-time basis.[10] If an academic has been hired on the life-time contract since the initial hiring in academia, job changes during career are likely to be voluntarily.

However, the enactment of the *Legislation of the Fixed-Term System for Faculty Members* in 1997 made it possible for universities to hire on fixed-term basis. Some fixed-term contracts have no option for renewal. Under such a contract, job changes inevitably occur at the expiration of the contract. If the contract is renewable, then job changes could occur due to the rejection of the contract renewal. Such cases 'contaminate' our results. Unfortunately, we can only tell whether academics are currently hired on fixed-term basis, but we cannot tell if they have ever been hired on fixed-term basis in the past. However, from the questionnaires we can tell the academic rank at which each past job change occurred. We use this information to make an assessment about the degree of 'contamination'.

According to Yamanoi and Kuzuki (2005) only 1.9% of Japanese academics were hired on fixed-term basis in 2001. In 2005 still only 3.4 % were hired on fixed-term basis (Huang, 2006). Among those hired on fixed-term basis, nearly 60% were lecturers in 2001 (Yamanoi and Kuzuki, 2005). Therefore, the job changes that occurred when academics were lecturers have the highest probability of 'contamination'. In our sample there are 32 academics who were hired in or after 1997 and who have experienced at least one job change. Among them ten were initially hired as lecturers and experienced job mobility while they were in the rank of lecturer. Such job mobility could be due to the rejection of contract renewal, thus contaminating our results. However, such job changes are rather a small portion of all the job changes that occurred in our data set (220). Therefore, we believe that the 'contamination' is not severe.

In order to further asses the degree of contamination, we reconstructed the job mobility variable by not counting the job change for the above mention ten cases. Results are almost unchanged. In Ordered Probit 1 the coefficient for (Articles) changed from (0.018) to (0.017) and it remained statistically significant at the 5% level. In Ordered Probit 2, the coefficient for

[9]The differences between the mean productivity and the 75th percentile productivity is very small, thus we decided to use the 90th percentile.

[10]In our questionnaire we asked if academics are hired on life-time basis (unlimited term contract) or on fixed-term basis. In our sample only 5.6% are hired on the fixed-term basis (see Table 2).

(ArticlesUs) changed from (0.044) to (0.043), but it remained statistically significant at the 5% significance level. The coefficient for (ArticlesJp) is unchanged at (0.013) and remained statistically insignificant. Thus, we believe that the 'contamination' is not high enough to alter the interpretation of the main result presented above.

In sum, our estimations indicate that refereed articles have a positive and statistically significant effect on labor mobility. Thus, academics within economics departments in Japan do appear to be rewarded for publishing refereed articles in terms of labor mobility, although the effect of the reward is rather small.

7. Conclusion

By using a data set of academic economists from Japanese universities, we estimated the effect of refereed articles on salary, promotion and labor mobility. We found no effect of refereed articles on salary and on promotion. However, we found a statistically significant effect of refereed articles on labor mobility, but the magnitude of the effect is rather small. Publishing one additional refereed article increases the probability that an academic has worked in exactly two universities by 0.4%. In addition, we found that publishing one additional refereed article in the US or Europe increases the probability that an academic has worked in exactly two universities by 1%. Refereed articles published in Japan have no statistically significant impact on the probability of working in more universities. We conclude that publishing refereed articles does not reward Japanese economists as it does within US and UK academia, by a direct increase in salary and accelerated promotion. Thus, our results are consistent with the beliefs within Japanese academia that publications do not affect salary or promotion.

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Table 1: Definitions of Variables

Name	Definition
Articles	Total no. of refereed articles (single-authored + co-authored/2)[a]
ArticlesJp	Total no. refereed articles published in Japan (single-authored + co-authored/2)
ArticlesUs	Total no. refereed published in the US, Europe & other (single-authored + co-authored/2)
Female	1 if female, 0 if male
Age	Age of respondent in 2008
Married	1 if ever married, 0 otherwise
Kids	Number of children
AssocProf	1 if associate professor, 0 otherwise
FullProf	1 if full professor, 0 otherwise [b]
FixTerm	1 if on fixed employment contract, 0 if otherwise
Courses	Total number of courses the respondent taught in 2008-09
Courses1st	Number of courses taught for the first time in 2008-09
Courses2nd	Number of courses taught for the second time in 2008-09
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 2000-03, 0 otherwise
Cohort04	1 if initially hired as academic from 2004 onward, 0 otherwise
PrivUniv	1 if academic works in private university, 0 otherwise
PubUniv	1 if academic works in public university, 0 otherwise
BusinessDep	1 if academic works in business department, 0 otherwise
PhDOffer	1 if the department offers PhD or doctorate (DSc. or DEc.)[c]
IntGrant(in 10,000 yen)	Amount of grant received from the department in 2007
IntGrant missing	1 if the amount of internal grant is missing observation
COE(in 10,000 yen)	Individual amount of 2007 COE (Center of excellence) grant
COE missing	1 if the amount of COE is missing
Seniority	Number of years worked at current employer
Experience	Total number of years worked as academic
NonAcadExp	Total number of years worked as non-academic
CareerBreak	1 if ever took career break, 0 otherwise
PhD	1 if holds a PhD, DSc. or DEc.
PhDOverseas	1 if holds a PhD, DSc. or DEc. from overseas
ExtGrant(in 10,000 yen)	Amount of external grant from outside the university in 2007 (the amount is per individual)
ExtGrant missing	1 if the amount of external grant is missing observation
Publications missing	1 if the publication record is missing observation
History	1 if specialized in history of economic thought, 0 otherwise[d]
Theory	1 if specialized in theory, 0 otherwise
Quantitative	1 if specialized in quantitative methods, 0 otherwise
Econsystem	1 if specialized in economic systems, 0 otherwise
Growth	1 if specialized in growth, 0 otherwise
Monetary	1 if specialized in monetary economics, 0 otherwise
Fiscal	1 if specialized in fiscal economics, 0 otherwise
International	1 if specialized in international economics, 0 otherwise
Business	1 if specialized in business, 0 otherwise
Indorg	1 if specialized in industrial organization, 0 otherwise
Labor	1 if specialized in labor economics, 0 otherwise
Urban	1 if specialized in urban & regional economics, 0 otherwise
Field missing	1 if field of specialization is missing observation

Table 1 Continued

Name	Definition
Excluded instruments	
Feduc	Father's education in years
Meduc	Mother's education in years
$Meduc^2$	Mother's education squared
$Feduc * Meduc$	Father's education times mother's education
Dependent variables	
Salary(in 10,000 yen)	Total annual salary in 2008[(e)]
Rank	1 if associate professor, 2 if full professor, 0 otherwise
$\#Univ\_worked$	Total number of universities an academic has been previously employed until 2008 (including the current university)

Notes: a) The number of articles is for the whole academic career until 2008; b) The excluded category includes assistant professors and lecturers c) Doctor of Science (DSc.); Doctor of Economics (DEc.); d) Excluded categories for the field of specialization are: natural resources, agricultural economics and the category 'other fields'; e) The total annual salary includes the 12-month salary plus bonuses and allowances from the current institution; f) Regressions include dummies for (Field missing), (Internal Grant missing), (COE missing), (External Grant missing), (Publication missing). Sample averages were imputed for missing observations.

Table 2: Summary Statistics (N=337)

Variable	Mean	Std. Dev.	Variable	Mean	Std. Dev.
Articles	7.511	12.008	Experience	17.056	11.630
ArticlesJp	5.798	10.607	NonAcadExp	3.397	7.158
ArticlesUs	1.713	3.945	CareerBreak	0.042	0.200
Female	0.172	0.378	PhD	0.650	0.478
Age	49.463	11.317	PhDOverseas	0.104	0.306
Married	0.825	0.381	ExtGrant	69.039	189.411
Kids	1.226	1.179	ExtGrant missing	0.151	0.359
AssocProf	0.294	0.456	Publications missing	0.068	0.253
FullProf	0.626	0.485	History	0.187	0.390
FixTerm	0.056	0.231	Theory	0.033	0.178
Courses	3.024	1.620	Quantitative	0.033	0.178
Courses1st	0.467	0.852	Econsystem	0.050	0.219
Courses2nd	0.351	0.890	Growth	0.050	0.219
Admin	0.045	0.207	Monetary	0.074	0.262
Cohort80s	0.234	0.424	Fiscal	0.116	0.320
Cohort90s	0.261	0.440	International	0.071	0.258
Cohort00-03	0.151	0.359	Business	0.134	0.341
Cohort04	0.160	0.367	Indorg	0.033	0.178
PrivUniv	0.585	0.494	Labor	0.086	0.281
PubUniv	0.086	0.281	Urban	0.080	0.272
BusinessDep	0.042	0.200	Field missing	0.036	0.186
PhDOffer	0.674	0.470	Feduc	13.778	3.267
IntGrant	52.188	31.569	Meduc	12.322	2.329
IntGrant missing	0.021	0.143	Salary	1022.300	280.086
COE	7.086	27.088	Rank	1.546	0.640
COE missing	0.045	0.207	Univ_worked	1.653	0.874
Seniority	12.739	10.545			

Table 3: Salary Equations (Dependent Variable = Log of Annual Salary) (N=337)

	OLS 1		OLS 2		2SLS	
Variables	Coeff.	Std.Err.	Coeff.	Std.Err.	Coeff.	Std.Err.
Articles	0.001	0.001	-	-	0.004	0.004
ArticlesJp	-	-	0.001	0.001	-	-
ArticlesUs	-	-	0.002	0.003	-	-
Female	**-0.068****	0.030	**-0.067****	0.030	**-0.065****	0.027
Age	**0.115***	0.062	**0.116***	0.062	**0.137****	0.062
Age^2	-0.002	0.001	-0.002	0.001	**-0.002***	0.001
Age^3	0.00001	0.00001	0.00001	0.00001	**0.00001***	0.00001
Married	**0.051****	0.025	**0.051****	0.025	**0.045***	0.024
Kids	0.007	0.009	0.007	0.009	0.009	0.008
AssocProf	0.069	0.052	0.067	0.052	0.073	0.049
FullProf	**0.198*****	0.061	**0.196*****	0.060	**0.204*****	0.060
FixTerm	**-0.229*****	0.073	**-0.232*****	0.072	**-0.220*****	0.071
Courses	-0.010	0.007	-0.010	0.007	-0.011	0.007
Courses1st	-0.011	0.016	-0.011	0.016	-0.009	0.014
Courses2nd	0.015	0.012	0.015	0.012	0.018	0.012
Admin	0.017	0.044	0.016	0.044	0.023	0.043
Cohort80s	0.024	0.046	0.024	0.046	0.027	0.044
Cohort90s	0.022	0.080	0.020	0.080	0.005	0.082
Cohort00-03	0.097	0.091	0.096	0.091	0.085	0.090
Cohort04	0.022	0.104	0.022	0.104	0.007	0.104
PrivUniv	**0.171*****	0.019	**0.170*****	0.019	**0.168*****	0.018
PubUniv	-0.018	0.031	-0.019	0.030	-0.026	0.031
BusinessDep	0.032	0.066	0.034	0.066	0.018	0.067
PhDOffer	**0.080*****	0.020	**0.080*****	0.020	**0.081*****	0.019
IntGrant	-0.0001	0.0003	-0.0001	0.0003	-0.0003	0.0003
COE	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003
Seniority	0.012	0.010	0.011	0.010	0.013	0.010
$Seniority^2$	-0.001	0.001	-0.001	0.001	-0.001	0.001
$Seniority^3$	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001
Experience	-0.011	0.023	-0.010	0.023	-0.015	0.021
$Experience^2$	0.001	0.001	0.001	0.001	0.001	0.001
$Experience^3$	-0.00002	0.00002	-0.00002	0.00002	-0.00003	0.00002
NonAcadExp	0.010	0.010	0.009	0.010	0.008	0.009
$NonAcadExp^2$	-0.001	0.001	-0.001	0.001	0.000	0.001
$NonAcadExp^3$	0.00001	0.00002	0.00001	0.00002	0.00001	0.00002
CareerBreak	-0.074	0.056	-0.074	0.056	-0.073	0.055
PhD	0.027	0.021	0.027	0.020	0.017	0.024
PhDOverseas	**0.061****	0.026	**0.057****	0.027	**0.073****	0.031
ExtGrant	**0.0001*****	0.00004	**0.0001*****	0.00004	0.00009	0.00006
History	**0.050****	0.023	**0.051****	0.023	**0.068****	0.032
Theory	-0.024	0.058	-0.026	0.059	-0.002	0.055
Quantitative	-0.043	0.073	-0.042	0.073	-0.028	0.071
Econsystem	**0.065****	0.032	**0.066****	0.033	**0.070****	0.031
Growth	0.018	0.039	0.018	0.039	0.026	0.037
Monetary	-0.009	0.027	-0.009	0.027	-0.009	0.027
Fiscal	0.001	0.028	0.002	0.028	0.017	0.033
International	0.027	0.036	0.025	0.037	0.018	0.033
Business	**0.047***	0.025	**0.049***	0.025	**0.055****	0.026
Indorg	-0.036	0.048	-0.036	0.048	-0.027	0.047
Labor	**0.067***	0.035	**0.068***	0.035	**0.071****	0.031

Table 3 Continued

	OLS 1		OLS 2		2SLS	
Variables	Coeff.	Std.Err.	Coeff.	Std.Err.	Coeff.	Std.Err.
Urban	0.012	0.030	0.014	0.030	0.010	0.029
Constant	4.231	0.940	4.204	0.935	3.915	0.928
R^2	0.78		0.78		0.77	
Hansen's test					6.53(p-val=0.088)	
H_0:$(Articles)exog.$, $\chi^2_{(1)}$					0.61(p-val=0.432)	

Note: 1) Standard errors are robust. ***Significant at the 1%, ** at the 5%, * at the 10% level.

Table 4: Rank Equations (Dependent Variable = Rank)

	Ordered Probit 1		Ordered Probit 2		OLS		2SLS	
Variables	Coeff.	Std.Err.	Coeff.	Std.Err.	Coeff.	Std.Err.	Coeff.	Std.Err.
Articles	0.005	0.017	-	-	-0.002	0.001	0.012	0.010
ArticlesJp	-	-	0.004	0.020	-	-	-	-
ArticlesUs	-	-	0.010	0.044	-	-	-	-
Female	-0.009	0.279	-0.007	0.278	0.021	0.070	0.028	0.066
Age	-0.080	0.933	-0.073	0.936	0.084	0.142	0.163	0.163
Age^2	0.005	0.020	0.005	0.020	-0.001	0.003	-0.002	0.003
Age^3	-0.00005	0.00014	-0.00004	0.00014	0.00000	0.00002	0.00001	0.00002
Married	-0.412	0.324	-0.415	0.323	-0.054	0.071	-0.065	0.067
Kids	0.121	0.111	0.120	0.111	0.005	0.020	0.007	0.021
FixTerm	**-2.825*****	0.810	**-2.825*****	0.809	**-0.348****	0.140	**-0.313****	0.140
Courses	0.077	0.089	0.077	0.089	0.011	0.015	0.003	0.015
Courses1st	-0.084	0.157	-0.083	0.157	0.011	0.031	0.018	0.032
Courses2nd	**-0.277****	0.124	**-0.277****	0.124	-0.045	0.035	-0.027	0.035
Admin	0.571	0.602	0.571	0.601	0.069	0.092	0.103	0.092
Cohort80s	-0.370	0.935	-0.360	0.931	-0.013	0.085	-0.016	0.094
Cohort90s	0.476	1.465	0.487	1.467	0.049	0.154	-0.039	0.181
Cohort00-03	0.135	1.616	0.151	1.618	0.004	0.201	-0.051	0.223
Cohort04	-0.677	1.626	-0.661	1.624	-0.077	0.258	-0.159	0.281
PrivUniv	**0.781*****	0.271	**0.780*****	0.271	0.067	0.048	0.064	0.048
PubUniv	**0.713***	0.378	**0.709***	0.378	0.079	0.089	0.038	0.082
BusinessDep	**3.383*****	0.730	**3.381*****	0.728	**0.240****	0.102	0.180	0.116
PhDOffer	-0.311	0.229	-0.315	0.231	0.000	0.039	0.008	0.040
IntGrant	**0.005****	0.003	**0.005****	0.003	**0.001***	0.000	0.000	0.001
COE	-0.002	0.004	-0.002	0.004	0.000	0.001	0.000	0.001
Seniority	0.136	0.226	0.135	0.228	0.007	0.024	0.015	0.025
$Seniority^2$	-0.006	0.021	-0.006	0.021	0.000	0.001	-0.001	0.001
$Seniority^3$	-0.0002	0.0006	-0.0002	0.0006	0.00000	0.00002	0.00002	0.00003
Experience	0.067	0.288	0.068	0.288	**0.107*****	0.040	**0.093****	0.042
$Experience^2$	0.007	0.022	0.007	0.022	**-0.004***	0.002	-0.003	0.002
$Experience^3$	0.00004	0.0005	0.00004	0.0006	0.00004	0.00003	0.00003	0.00003
NonAcadExp	0.047	0.092	0.049	0.092	0.000	0.017	-0.011	0.019
$NonAcadExp^2$	-0.002	0.009	-0.002	0.009	0.000	0.002	0.000	0.002

Table 4 Continued

	Ordered Probit 1		Ordered Probit 2		OLS		2SLS	
Variables	Coeff.	Std.Err.	Coeff.	Std.Err.	Coeff.	Std.Err.	Coeff.	Std.Err.
NonAcadExp^3	0.00004	0.0002	0.00005	0.0002	0.00001	0.00003	0.00001	0.00004
CareerBreak	0.721	0.457	0.717	0.456	0.000	0.081	-0.018	0.082
PhD	**0.895*** **	0.267	**0.893*** **	0.268	**0.109** **	0.048	0.075	0.054
PhDOverseas	-0.544	0.428	-0.549	0.436	-0.007	0.073	0.026	0.077
ExtGrant	0.003	0.002	0.003	0.002	0.00005	0.00009	-0.00008	0.0001
History	**-0.638***	0.387	**-0.638***	0.387	-0.062	0.062	0.008	0.081
Theory	**-1.352** **	0.645	**-1.360** **	0.649	-0.141	0.145	-0.065	0.155
Quantitative	-0.473	0.580	-0.473	0.580	-0.052	0.124	-0.003	0.129
Econsystem	-0.703	0.577	-0.700	0.578	-0.103	0.136	-0.067	0.128
Growth	**-1.358** **	0.533	**-1.364** **	0.539	-0.202	0.141	-0.166	0.132
Monetary	0.380	0.402	0.378	0.403	0.094	0.084	0.093	0.084
Fiscal	0.122	0.326	0.115	0.329	-0.020	0.067	0.041	0.082
International	-0.349	0.492	-0.355	0.490	-0.029	0.093	-0.059	0.106
Business	0.297	0.302	0.300	0.303	0.043	0.056	0.066	0.059
Indorg	0.088	0.672	0.086	0.672	-0.080	0.114	-0.044	0.116
Labor	0.083	0.331	0.085	0.331	0.032	0.066	0.039	0.064
Urban	0.669	0.442	0.675	0.441	0.110	0.074	0.092	0.069
Constant					-1.900	2.152	-2.993	2.431
Cut1	2.212	13.908	2.347	13.947				
Cut2	6.148	13.915	6.283	13.952				
Marginal effects								
$(Articles)$=0.003								
$(ArticlesJp)$=0.002								
$(ArticlesUs)$=0.006								
No. Obs.	337		337		337		337	
Pseudo R^2/R^2	0.70		0.70		0.72			
Hansen's test							1.67(p-val=0.614)	
H_0:$(Articles)$ exogenous, $\chi^2_{(1)}$							2.13(p-val=0.144)	

Note: 1) Standard errors are robust. ***Significant at the 1%, ** at the 5%, * at the 10% level.

Table 5: Labor Mobility Equations (Dependent Variable = ($\#Univ\_worked$))

	Ordered Probit 1		Ordered Probit 2		OLS		2SLS	
Variables	Coeff.	Std.Err.	Coeff.	Std.Err.	Coeff.	Std.Err.	Coeff.	Std.Err.
Articles	**0.018****	0.009	-	-	**0.013***	0.007	-0.001	0.025
ArticlesJp	-	-	0.013	0.009	-	-	-	-
ArticlesUs	-	-	**0.044****	0.021	-	-	-	-
Female	0.120	0.206	0.140	0.205	0.041	0.110	0.042	0.108
Age	**1.163*****	0.425	**1.202*****	0.428	**0.716*****	0.200	**0.675*****	0.215
Age^2	**-0.026*****	0.008	**-0.026*****	0.008	**-0.016*****	0.004	**-0.015*****	0.004
Age^3	**0.0002*****	0.00005	**0.0002*****	0.00005	**0.0001*****	0.00003	**0.0001*****	0.00003
Married	-0.297	0.224	-0.303	0.225	-0.169	0.120	-0.148	0.129
Kids	-0.051	0.081	-0.060	0.082	-0.014	0.047	-0.020	0.050
FullProf	-0.412	0.489	-0.440	0.491	-0.065	0.222	-0.089	0.223
AssocProf	-0.487	0.408	-0.512	0.409	-0.200	0.154	-0.186	0.160
Cohort80s	0.214	0.412	0.169	0.422	0.116	0.306	0.178	0.306
Cohort90s	-0.147	0.641	-0.198	0.649	-0.087	0.461	0.025	0.471
Cohort00-03	-0.564	0.786	-0.612	0.794	-0.231	0.533	-0.159	0.519
Cohort04	-0.366	0.954	-0.388	0.958	-0.080	0.575	0.040	0.575
Experience	0.137	0.141	0.147	0.142	0.041	0.058	0.057	0.065
$Experience^2$	0.002	0.007	0.001	0.007	0.003	0.003	0.002	0.003
$Experience^3$	-0.00007	0.00009	-0.00006	0.00009	-0.00006	0.00005	-0.00005	0.00005
NonAcadExp	**0.135****	0.061	**0.127****	0.060	**0.062***	0.037	**0.076****	0.036
$NonAcadExp^2$	-0.008	0.006	-0.008	0.006	-0.003	0.003	-0.004	0.003
$NonAcadExp^3$	**0.0002***	0.0001	0.0002	0.0001	0.00007	0.00007	0.00008	0.00006
CareerBreak	0.487	0.340	0.484	0.338	0.331	0.234	0.350	0.230
PhD	**0.792*****	0.186	**0.779*****	0.188	**0.404*****	0.104	**0.471*****	0.170
PhDOverseas	-0.012	0.222	-0.107	0.236	0.056	0.150	0.027	0.171
History	-0.105	0.226	-0.065	0.229	-0.079	0.134	-0.171	0.193
Theory	0.543	0.486	0.529	0.458	0.325	0.369	0.257	0.416
Quantitative	0.226	0.358	0.279	0.368	0.108	0.212	0.083	0.216
Econsystem	0.173	0.295	0.214	0.298	0.012	0.155	-0.049	0.168
Growth	-0.239	0.337	-0.234	0.331	-0.106	0.139	-0.157	0.174
Monetary	-0.045	0.284	-0.044	0.280	-0.028	0.183	-0.020	0.172
Fiscal	0.187	0.237	0.203	0.240	0.098	0.134	0.042	0.163

Table 5 Continued

Variables	Coeff.	Std.Err.	Coeff.	Std.Err.	Coeff.	Std.Err.	Coeff.	Std.Err.
International	**0.725****	0.310	**0.677****	0.311	**0.398***	0.221	**0.441****	0.223
Business	**0.680*****	0.217	**0.733*****	0.217	**0.372****	0.149	**0.380****	0.154
Indorg	0.302	0.386	0.295	0.386	0.090	0.192	0.038	0.196
Labor	**-0.734****	0.307	**-0.707****	0.307	**-0.276****	0.128	**-0.279****	0.121
Urban	-0.098	0.281	-0.039	0.284	0.032	0.163	0.076	0.185
Constant					-10.427	3.180	-9.974	3.299
Cut1	18.065	6.921	18.790	6.936				
Cut2	19.201	6.925	19.931	6.940				
Cut3	20.356	6.929	21.112	6.941				
Cut4	21.065	6.931	21.832	6.943				
Marginal effects								
$Articles$=0.004								
$ArticlesUs$=0.010								
No. obs.	337		337		337		337	
Pseudo R^2/R^2	0.21		0.22		0.34		0.36	
Hansen's test							0.94(p-val=0.815)	
H_0:($Articles$) exogenous, $\chi^2_{(1)}$							0.13(p-value=0.717)	

Note: 1) Standard errors are robust. ***Significant at the 1%, ** at the 5%, * at the 10% level.

Table 6: 2SLS - First Stage Results (Dependent Variable = Articles)(N=337)

	Salary equation		Linear promotion		Linear labor mobility	
Variables	Coeff.	Std.Err.	Coeff.	Std.Err.	Coeff.	Std.Err.
Female	-0.743	1.170	-0.778	1.160	-0.627	1.238
Age	**-6.447****	3.237	**-6.602****	3.246	-3.575	4.115
Age^2	**0.139****	0.068	**0.140****	0.068	0.074	0.087
Age^3	**-0.001****	0.0005	**-0.001****	0.0005	-0.0005	0.0006
Married	1.155	1.257	1.233	1.229	**2.272***	1.371
Kids	-0.447	0.893	-0.448	0.895	-0.957	0.822
AssocProf	-1.590	1.738	-	-	0.661	1.647
FullProf	-3.098	2.505	-	-	-0.009	2.175
FixTerm	-3.347	3.511	-2.784	3.269	-	-
Courses	0.458	0.385	0.447	0.381	-	-
Courses1st	-0.505	0.869	-0.525	0.864	-	-
Courses2nd	**-1.080***	0.577	**-1.019***	0.555	-	-
Admin	-1.355	3.018	-1.483	3.016	-	-
Cohort80s	-0.705	3.558	-0.664	3.517	2.556	3.892
Cohort90s	4.069	6.577	4.058	6.471	4.095	6.773
Cohort00-03	2.056	8.146	2.094	8.169	2.616	7.961
Cohort04	3.408	9.962	3.594	9.955	5.594	9.574
PrivUniv	0.347	1.802	0.246	1.756	-	-
PubUniv	2.658	2.112	2.546	2.091	-	-
BusinessDep	4.749	3.949	4.403	3.867	-	-
PhDDep	-0.254	1.288	-0.253	1.290	-	-
IntGrant	**0.036***	0.023	0.035	0.022	-	-
COE	0.011	0.023	0.011	0.023	-	-
Seniority	-0.427	0.736	-0.444	0.739	-	-
$Seniority^2$	0.037	0.041	0.038	0.041	-	-
$Seniority^3$	-0.001	0.001	-0.001	0.001	-	-
Experience	1.265	1.275	1.103	1.250	1.385	1.084
$Experience^2$	-0.066	0.064	-0.060	0.064	-0.065	0.061
$Experience^3$	0.001	0.001	0.001	0.001	0.001	0.001
NonAcadExp	0.625	0.512	0.630	0.513	0.804	0.544
$NonAcadExp^2$	-0.012	0.068	-0.013	0.068	-0.022	0.070
$NonAcadExp^3$	-0.0001	0.002	-0.0001	0.002	0.0000	0.002
CareerBreak	-0.074	2.072	-0.068	2.063	-1.191	2.236
PhD	**3.090***	1.685	2.917	1.658	**5.569*****	1.467
PhDOverseas	-3.214	2.120	-3.193	2.096	-3.007	2.076
ExtGrant	**0.009****	0.004	**0.009****	0.004	-	-
History	**-5.397*****	1.942	**-5.323*****	1.943	**-6.627*****	1.673
Theory	**-7.030****	3.117	**-6.831****	3.087	**-6.212****	2.873
Quantitative	**-4.371****	1.881	**-4.268****	1.885	-3.213	2.089
Econsystem	-2.501	1.558	-2.364	1.545	**-3.269****	1.626
Growth	-2.638	1.818	-2.352	1.847	**-3.519****	1.784
Monetary	0.126	3.289	-0.013	3.204	0.280	3.301
Fiscal	**-4.670*****	1.619	**-4.654*****	1.614	**-4.238****	1.689
International	2.360	4.504	2.413	4.501	3.141	4.185
Business	-2.357	2.079	-2.430	2.060	-0.374	2.712
Indorg	-2.460	3.335	-2.355	3.331	-2.291	3.100
Labor	-1.771	1.885	-1.806	1.878	-1.940	1.668
Urban	1.171	2.562	1.007	2.547	2.347	3.434
Feduc	**1.971***	1.037	**1.887***	1.023	1.574	1.227
Meduc	**-2.744****	1.154	**-2.713****	1.174	-3.287	1.257
$Meduc^2$	**0.215*****	0.069	**0.210*****	0.070	**0.222*****	0.075

Table 6 Continued

	Salary equation		Linear promotion		Linear labor mobility	
Variables	Coeff.	Std.Err.	Coeff.	Std.Err.	Coeff.	Std.Err.
Feduc∗meduc	**-0.166****	0.083	**-0.160***	0.082	**-0.136*****	0.098
Constant	92.408	47.810	95.957	48.344	52.692	59.603
Adjusted R^2	0.24		0.24		0.16	
H_0 (F-stat(p-val))	2.55(0.039)		2.38(0.052)		2.47(0.044)	

Notes: 1) Standard errors are robust. ***Significant at the 1%, ** at the 5%, * at the 10% level. 2) H_0: excluded instruments not jointly significant.