

Gender Gap in Preferences for Defined Contribution Pensions in Japan

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INTRODUCTION

The surge of 401(k) based pension plans in the United States began in the early 1980s. Since then, workers with an individual defined contribution account have dramatically increased over the last three decades. It is only recently that the Japanese government passed pension laws permitting employers to shift from a conventional defined benefit (DB) scheme to defined contribution (DC) and cash balance plans. Since enactment of the new laws, the government has lauded the tax-deferred portable retirement account as an important DC advantage over the conventional DB plans. It is because of these features that the government expects DC plans to deliver remarkable benefits to today's Japanese female workforce, who would otherwise accumulate little personal retirement savings under the non-portable DB scheme. Despite the conceivable benefits, however, a recent government study reveals a considerable gender gap in DC enrollment rates among full-time employees.

The gap may partially be attributed to knowledge disparity existing between male and female employees. However, whether the DC enrollment gap vanishes with the increased level of women's pension knowledge is *a priori* unknown. If the parameters affecting individual demand for DC pensions differ systematically across genders, the gap will continue to exist even with employer-sponsored retirement education. In increasingly DC predominating corporate cultures, the male-female difference in DC participation rates have important policy implications for future income distribution and poverty among the coming generations of elderly Japanese. Moreover, in Japan's aging society with rising divorce rates, improvement of post-retirement financial security is particularly important for women who are likely to outlive their spouse as well as retirement savings. Thus, accurate understanding of the causal effects of the aforementioned factors becomes imperative for devising a new pension scheme which equally provides a post-retirement savings opportunity for both men and women. In order to address these issues, this paper attempts to shed light on the yet-unstudied gender disparity in the determinants of DC pension choice.

GENDER GAP IN DC PARTICIPATION RATES IN JAPAN

Data. The data source used for the analysis of gender disparity in the preferences for DC pensions is the *Survey on Employer Sponsored Fringe Benefits 2002*, which was conducted by the Japan Institute of Life Insurance. The original data collection targeted full-time workers employed in small- to medium-sized private firms. The data set contains individual characteristics of 1,802 full-time employees, both male and female, with extensive information

on their pension eligibility status, available corporate pension plan types as well as chosen plans. Of the full sample, there are 1,126 individuals who are eligible for corporate retirement benefits, typically covered with employer-sponsored DB pensions. In addition, there are 166 full-time workers who are ineligible for corporate-sponsored retirement plans, and 445 workers whose employers offer no private retirement benefits at all. The final sample consists of 1,341 employees with valid responses to all the necessary variables.

Gender Gap: Descriptive Evidence. A typical DC plan overcomes some of the inherent shortcomings of a conventional DB retirement scheme. Most notably, DC portability offers remarkable benefits to individuals who would historically have accumulated little personal retirement savings under the non-portable DB scheme. This is particularly the case for female workers who would presumably suffer interrupted careers due to childbearing periods. Despite the potential benefits, however, a study by the Ministry of Health, Labour and Welfare (2005) reports that only 32 percent of corporate DC pension eligible female workers were enrolled in a DC plan in 2004, while 75 percent of DC eligible men were in the same year.

The gender gap may partially be attributed to female employees lagging behind men with regard to DC-related knowledge. Only a handful (16%) of the pension eligible women possessed simple knowledge of DC pensions in 2002, while twice (32%) the similar male sample did. Including workers with very limited information of DC pensions who responded "only heard of the name," 53 percent of the eligible female workers and 75 percent of the male workers possessed some knowledge of DC pensions. Overall, nearly one-half (47%) of full-time corporate pension-eligible women did not know at all what a DC plan is, while only one-quarter of the male sample fell into the same category.

The lack of DC knowledge would place women in an inferior position to men when making an optimal choice among alternative retirement plan types, resulting in under-investment in a DC pension account. The primary purpose of this paper, however, is to explore further explanations other than knowledge disparity for why female and male employees differ in the DC enrollment rates in Japan. In particular, I consider the gender differences in the efficacy of various DC characteristics and investigate the extent to which these differences systematically account for differentiated DC preferences between men and women.

Hypotheses

There are several rationales possible to explain the observed gender differences in DC preferences. First, a DC plan is typically characterized by front-loaded tax incentives; that is, the contributions are deductible from current income, and the accrued investment return generates no tax liability until withdrawn. However, a tax-deferred savings vehicle would provide a stronger incentive for workers in higher tax brackets. Therefore, the tax benefits may not produce a sufficiently positive incentive on female DC choice relative to men as the

average female salary is significantly lower than that of their male counterparts. Thus, our first hypothesis states:

H₁: Women are less likely than men to prefer a DC plan in response to its tax advantage, contributing to the gender disparity in DC choice.

Secondly, the extent to which one would be able to take advantage of DC portability may vary across genders. Ippolito (1997) notes that the preferred type of pension coverage, i.e., DB or DC plan, would depend on whether one finds the “indenture premium” associated with DB pensions sufficient to overcome the inherent cost of less mobility. If a woman faces a smaller prospect of finding an equivalently well-compensated job outside the current firm than a man, then she might find the cost of less mobility low, leaving the relative value of her current DB indenture premium sufficiently high. A significantly high indenture premium faced by women would reduce the efficacy of their choosing a DC plan in response to the portability benefit. Our second hypothesis states:

H₂: Women are less likely than men to prefer a DC plan in response to its portability benefit, contributing to the gender disparity in DC choice.

Thirdly, the issue of women reluctant to make their own judgment and being dependent on men with regard to financial matters is commonly recognized in the U.S. (Stanny 2007, Johnston 2008) and Japan (Kakutei Kyoshutsu Nenkin Kyōiku Kyōkai 2004). Johnston (2008) describes “Whether single, married, divorced or widowed, many women have the outlook that a man will plan for their future and take care of them in their golden years - or, at the very least, that a comfortable retirement way down the road will *somehow* work out in the end...” (pp. 62) Therefore, a tendency often referred to as the “*Prince Charming Syndrome*” in non-academic literature may also play a role in widening the DC enrollment gap in Japan, caused by female employees who are reluctant to keep their hands on their future retirement money matters.

H₃: Women are less likely than men to proactively manage their retirement savings, hampered by the so called “*Prince Charming Syndrome*.”

Finally, women might be innately less tolerant than men toward investment risks and uncertainties. There is numerous evidence that men and women have different attitudes toward risk, with men tending toward riskier preferences than women (Zinkhan and Karande 1991, Bajtelsmit and VanDerhei 1997, Hinz et al. 1997). If men are more bold than women toward investment risk, as suggested in the study by Barber and Odean (2001), the observed preference gap could emerge even among the samples with similar perceptions of investment risk. Thus, our last hypothesis to be tested is as follows:

H₄: Women are less likely than men to prefer a DC plan in response to investment risk associated with DC portfolios, contributing to the gender disparity in DC choice.

In order to understand the structural components of the gender gap in DC preferences and to examine the above hypotheses, a multivariate analysis is conducted in the sections that follow. Before proceeding to the empirical results, the estimation framework and some technical issues are described in the next section.

ESTIMATION FRAMEWORK AND RESULTS

ESTIMATION FRAMEWORK. An empirical investigation of the male-female difference in the preferences for DC pensions involves a multivariate analysis with the following probit estimation

$$I_i = \sum_{j=1}^k \beta_j \text{factor}_{ij} + \delta_1 \text{education}_i + \delta_2 \text{marital}_i + \delta_3 \text{occupation}_i + \delta_4 \text{union}_i \\ + \delta_5 \text{eligible}_i + \delta_6 \text{age}_i + \delta_7 \text{tenure}_i + \delta_8 \log \text{salary}_i + \delta_9 \% \text{depend}_i + \varepsilon_i$$

where the dependent variable I_i equals one if an individual reveals a preference for a DC scheme and zero otherwise; the first set of covariates $\sum^k \text{factor}_{ij}$ represents the individual i 's factorized perceptions of DC characteristics. For these factor variables, I avoid the direct use of the binary 0-1 raw dummy scores, which indicate whether an individual agrees with the stated DC characteristics questions. Instead, I first explore the relationships among the measured binary variables and determine whether these relationships can be summarized in a smaller number of latent constructs (Thompson 2004). Other explanatory variables included are dummy variables for education, marital status, occupation, union status, corporate pension eligibility, as well as continuous variables for age, tenure, log-salary, and individual's proportional prediction of corporate pension as a post-retirement income source, and ε_i is a standard normally distributed disturbance term. The probit model is estimated separately for both male and female samples. I also estimate the model using a pooled regression with interactions between the respondent's gender and other explanatory variables.

Thus, the significance test on the gender difference in individual coefficients $\hat{\beta}_j^m = \hat{\beta}_j^f$ involves testing for significance in the coefficients on the interaction between the female dummy and the other control variables included in the estimation.

EMPIRICAL RESULTS. As the first step, the directly measured binary responses to various DC characteristics questions are factor analyzed to identify a parsimonious set of underlying constructs. The estimated pattern coefficients, or the loads, for each DC characteristic are presented in Table 1. Subjective interpretations of the corresponding extracted factors are given in the bottom of the table. The first three factors, namely "tax benefit," "portability" and

“self manageability” represent the latent constructs drawn from the 0-1 dummy scores on nine selected merits of DC pensions. The last two factors, “investment risk” and “costs,” represent the latent factors extracted from 5 measured binary responses on DC disadvantages. The factor scores for each respondent are then computed using the obtained pattern coefficients, which in turn are entered in the probit estimation as the perception variables $\sum^k \text{factor}_{ij}$ to test the hypotheses described in the previous section.

Table 1 Estimated pattern coefficients on the characteristics of DC plans

Responses to DC characteristics	Advantages			Disadvantages	
	Factor I	Factor II	Factor III	Factor IV	Factor V
Tax exempt contributions	.650	.307	.134		
Tax exempt profits	.707	.157	.237		
Being able to carry over the benefit as one changes a job	.119	.559	.130		
Being able to view own account balance any time	.139	.515	.249		
Being able to receive retirement allowances even with short tenure	.163	.461	.073		
Being able to manage own retirement assets	.087	.153	.421		
Account balance may greatly increase if managed properly	.172	.156	.399		
Being able to acquire asset management and investment knowledge	.087	.027	.642		
Provide the opportunity to think about a long-term life plan	.082	.127	.398		
Require the knowledge of financial and investment commodities				.529	.077
Account balance may greatly decrease if managed poorly				.568	.303
Unstable life due to uncertain pension allowances				.474	.195
Insufficient tax exemption for contributions				.102	.400
Various transaction costs				.202	.580
Factor interpretation	Tax benefit	Portability	Self manageability	Investment risk	Costs

Note: Factors are extracted using the principal component method with varimax rotation. The largest estimated pattern coefficients across each factor are highlighted in the table. Factor scores are computed with these estimated coefficients using the regression method.

The probit estimation results of individual DC preferences are presented in Table 2. The DC advantage factors have positive coefficient estimates while the disadvantage factors indicate negative effects for both men and women. The statistical test of the first hypothesis is based on the coefficient estimates on tax benefit. The estimation result shows, without controlling employee demographics, the tax advantage does not significantly affect individual DC preferences for both genders. The pooled regression coefficient on tax benefit interacted with the female dummy allows us to conduct the test against Hypothesis 1. The result shows insignificant gender difference (t-ratio = .84), concluding that the efficacy of tax benefit is not

responsible for generating the gender gap in DC preferences.

The estimated coefficients on the DC portability reveal a significantly positive effect for both genders, with men's marginal effect higher than that of women. The finding is in line with our expectation, with an implication of less efficacy of portability benefit for full-time employed women. The pooled regression estimation which tests the inequality of the male-female marginal effects, however, shows an insignificant result (t-ratio = -1.17). Therefore, no evidence is found that supports the second hypothesis. The efficacy of the portability merit is not a significant source of the gender gap in DC enrollment rates for this sample.

Table 2 Bivariate probit estimation of DC preferences

DC characteristic factor:	Specification 1			Specification 2		
	Men (1)	Women (2)	(1)=(2) (t-ratio)	Men (3)	Women (4)	(3)=(4) (t-ratio)
Factor I (tax benefit)	.019 (.062) [.005]	.129 (.090) [.022]	.84	.023 (.064) [.006]	.161 * (.096) [.027]	1.06
Factor II (portability)	.482 *** (.075) [.121]	.461 ** (.116) * [.080]	-1.17	.481 ** (.078) * [.116]	.450 *** (.122) [.074]	-.58
Factor III (self manageability)	.522 *** (.064) [.131]	.332 ** (.114) * [.058]	-1.75	.545 ** (.068) * [.131]	.351 *** (.119) [.058]	-1.79
Factor IV (investment risk)	-.218 ** (.088) [-.055]	-.277 ** (.140) [-.048]	-36	-.220 ** (.092) [-.053]	-.281 * (.149) [-.047]	-.55
Factor V (costs)	-.070 (.082) [-.018]	-.081 (.129) [-.014]	-.04	-.068 (.086) [-.016]	-.067 (.136) [-.011]	-.01
Demographic controls included	No	No	No	Yes	Yes	Yes
-2 Log-likelihood	769	290	1,069	737	284	1,042
Pseudo R ²	.135	.093	.126	.171	.114	.148
Sample size	899	442	1,341	899	442	1,341

Note: The numbers in brackets are the marginal effects, and the numbers in parentheses are standard errors. Other demographic variables included in specification 2 estimation are dummy variables for age, marital status, education, occupation, union status, and corporate pension eligibility status, and continuous variables for tenure, log(salary), %pension dependency. Both specifications include a constant term. *significant at the .10 level; **significant at the .05 level; ***significant at the .01 level. The t-ratios indicate a pair-wise significance test for gender differences.

Thirdly, the self manageability of a DC account portfolio is a positive and significant determinant of DC preferences for both men and women. The pooled regression estimate on the self manageability interacted with the gender dummy shows the female marginal effect being significantly lower than the male effect (t-ratio = -1.75). The result implies that unwillingness to manage their own retirement investments is a cause for female employees to shy away from the new DC pension alternative, supporting our hypothesis of the *Prince Charming Syndrome* pervading among Japanese female workers.

Finally, the estimation result shows an adverse effect of investment risk on DC preferences for both male and female employees, with the males' marginal effect slightly greater than the

female effect. However, the test statistic from the pooled regression shows insignificant result (t-ratio = -0.36), indicating that no evidence is found that the gender difference in DC preferences can be attributed to distinguishable levels of risk bearing between male and female employees. Based on this result, our fourth hypothesis is rejected.

CONCLUSIONS

A portable individual retirement account is considered critical as Japan's workforce becomes increasingly dynamic. Defined contribution plans encourage employees to make their own choices in retirement savings. However, the substantial gap in DC enrollment rates gives rise to skepticism for its efficacy as an alternative retirement saving opportunity, particularly for the growing Japanese female workforce. The result obtained in this study is restricted by the nonrandomly sampled nature and its small size as well as the timing of the data collection, which was conducted within a year after the new DC pension laws came into effect. Nonetheless, a significant DC-related knowledge gap is found across genders, reducing the choice probability of DC pensions for female employees.

Other than the DC-related knowledge disparity, some of the important findings provided by this study are: the male-female knowledge gap is more severe for employees with corporate-sponsored pension coverage than for employees with no coverage. Provided that individuals perceive the merits and demerits of DC pensions at a similar level, however, men and women reveal different preferences for DC pensions, suggesting that their perceptual responses may widely differ from their actual behavior. The result also shows robust evidence of the *Prince Charming Syndrome* plaguing the female workforce as a significant source of gender gap in DC enrollment in Japan. DC tax advantage is more favored by female workers than the male counterparts, contributing to the reduction of the gender gap. Among the corporate pension covered employees, the efficacy of DC portability is a far more significant gap generating factor. If the observed Prince Charming Syndrome is a significant factor, then the recent trend toward giving individuals greater control over their retirement investments could be particularly detrimental to elderly women.

ACKNOWLEDGMENTS

The author thanks seminar participants at Hitotsubashi University, National University of Singapore and APPAM for valuable comments and suggestions on an earlier draft of this paper. The data set used in this paper, conducted by the Japan Institute of Life Insurance, may be obtained upon request from the Institute of Social Sciences at the University of Tokyo, Japan. Research results and conclusions expressed in this paper are those of the author's and do not reflect the views of JILI and ISS-University of Tokyo.

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