Gender Gap in Preferences for Defined Contribution Pensions in Japan

Satoshi P. Watanabe*

April 2009

The author would like to thank 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.

* Satoshi P. Watanabe is Associate Professor of Economics and Education at the Research Institute for Higher Education, Hiroshima University and Adjunct Associate Professor of Labor Economics at the Graduate School of Business Sciences, University of Tsukuba-Tokyo. Address: 1-2-2 Kagamiyama Higashi-Hiroshima, Hiroshima 739-8512 Japan. Tel. +81-82-424-6232. Email: sw259@hiroshima-u.ac.jp.

Abstract

Using a survey data collected by the Japan Institute of Life Insurance in 2002, this study finds a significant gender gap in DC pension knowledge among workers employed at small- to medium-sized private firms in Japan. Even with similar DC knowledge, however, men and women reveal different preferences for DC pensions, indicating that their perceptional responses may widely differ from actual behaviors. Apart from the knowledge gap, the result shows evidence of the *Prince Charming Syndrome* among female employees as a significant source of the gender gap in DC participation rates. Among corporate pension covered employees the gender difference in the efficacy of DC portability is a more significant gap-generating factor. DC tax advantage is particularly favored by pension covered female employees over male counterparts, reducing the DC preference gap. No similar evidence is found for employees with no corporate pension coverage.

Gender Gap in Preferences for Defined Contribution Pensions in Japan

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) pension 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 retirement plans. It is because of these features that the government expects DC pensions 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-provided retirement education. This study spotlights the following four factors as potential sources of the gender disparity in DC enrollment rates in Japan: the gender differences in (1) the incentive to save in a

tax-deferred vehicle; (2) the efficacy of DC account portability; (3) reluctance to manage one's own retirement investments, and (4) the tolerance for investment risk and uncertainty associated with DC portfolios.

The new DC pension laws provide Japanese workers with an opportunity to reconsider the importance of managing their retirement asset allocations. In increasingly DC predominating corporate cultures, however, 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

1. 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*,[2] which was conducted by the Japan Institute of Life Insurance in 2002. The original data collection targeted full-time workers employed in small- to medium-sized private firms.

[2] Author's translation of *Kigyō no fukuri kōsei seido ni kan suru chōsa*.

The data set contains individual characteristics of 1,801 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 pension plans, and 445 workers whose employers offer no private retirement benefits at all.[3] The final sample consists of 1,341 employees with valid responses to all the necessary variables. Summary statistics for the variables used in the analysis are presented in Table 1 for both selected and full samples.

[Table 1]

The average annual salary of the full-time female employees is 34 percent lower than that of male counterparts. The significantly lower income would give women smaller incentives to set aside part of their current earnings into a tax-deferred savings account. Male employees are typically older with longer job tenure than females. Barsky, et al. (1997) find that there are substantial differences by age in estimated risk tolerance, with the youngest and the oldest cohorts being the most risk tolerant and cohorts in the middle being less risk tolerant. However, older workers with longer tenure may have a slimmer outlook for changing their job, reducing the efficacy of DC portability for them. Therefore, the net effect of worker's age and tenure on DC

[3] There are 65 employees whose corporate pension eligibility status is unknown, and who are eliminated from our analysis.

preferences is *a priori* unpredicted, and these variables need be controlled separately.

Both male and female employees predict on average that approximately 16 percent of their post-retirement income comes from their corporate-sponsored retirement savings. A significantly higher proportion of male employees are married (72.2%) than the female sample (33.3%), and a higher proportion of female sample (10.9%) are widowed or separated than their male counterparts (2.3%) Larger fractions of the female sample are high school graduates (40.3%) and 2-year college graduates (26.5%). Only 24 percent of the female sample holds a bachelor's degree, while 55.2 percent of male respondents have 4-year college or higher education. Barsky, et al. (1997) report that there is a U-shaped relationship between years of schooling completed and the measure of risk tolerance; individuals with less than 12 years of schooling and those with a college education have greater levels of risk tolerance than individuals with 12 years of education. Therefore, in terms of educational attainment, we anticipate that male workers have a higher inclination to choose DC plans than their female counterparts.

The majority of female employees are clerical workers (84.8%) and are significantly underrepresented in managerial positions (3.2%) relative to men (26.4%). Large proportions of male (68.0%) and female (76.7%) employees work for a company with no organized unions. This perhaps is due to the nature of the survey targeting individuals employed in small- to medium-sized firms. Male employees are more likely than female employees to be eligible for corporate-sponsored retirement benefits. Finally, a higher proportion of male workers (19.6%) preferred DC plans to DB alternatives relative to their female counterparts (11.8%). Overall, in comparison

with the full sample, our selected sample seems to reflect the snapshot of typical small- to medium-sized private firms in Japan.

2. Gender Gap: Descriptive Evidence

As typified by 401(k) and 403(b) plans in the U.S. which have rapidly permeated in the last three decades,[4] defined contribution retirement plans overcome some of the inherent shortcomings of a conventional DB pension scheme. Most notably, DC portability offers remarkable benefits to individuals who would historically have accumulated little personal retirement savings under the non-portable DB pension scheme.[5] This is particularly the case for female workers who would presumably suffer interrupted careers due to childbearing periods. The accumulated savings in a DC account belong to an individual account holder upon vesting, and one need not be employed by the same firm until reaching the mandatory retirement age in order to be

[4] See, for example, Chapter 7 in Ippolito (1997) and Chapter 2 written by Poterba and Wise (1999) in Wise (ed.), for an overview of the recent expansion of these plans in the U.S.

[5] Limitations of the conventional DB plans, for which the Ministry of Health, Labour and Welfare of Japan claims to be the primary reasons for implementing the new DC scheme, are listed on its website (http://www.mhlw.go.jp/topics/bukyoku/nenkin/nenkin/kyoshutsu/gaiyou.html). The first reason cited is the fact that the conventional DB pension scheme has not been implemented by many small- to medium-sized firms in Japan, leaving workers at these firms at a disadvantage with no private retirement programs. The second issue pointed out by the Ministry is the inability of DB benefits to be rolled over as workers change their jobs. It is claimed that these two issues have historically put female workers in Japan at a disadvantage because women tend to work for smaller firms with no corporate retirement benefits and have an interrupted career as they reach the childbearing stage of life. Moreover, from the employers' viewpoint the introduction of the DC pension scheme was imperative as the corporate-sponsored DB retirement programs have imposed an enormous financial burden on many insolvent employers in the past decade (Japan Business Federation 2006). Muto and Ishizuka (2002) report that *Kōsei Nenkin Kikin* and *Tekikaku Taishoku Nenkin*, Japan's two most popular privately managed DB retirement programs, have been undergoing insufficient reserves due to frail performance of stumbling domestic investment markets since the burst of Japan's bubble economy.

entitled to her pension payouts.[6] Since enactment of the new DC pension law in 2002, the tax-deferred portable retirement account has been hailed by the government as an alternative to the traditional DB retirement plans.[7] Despite the potential benefits, however, a study by the Ministry of Health, Labour and Welfare (2005) reports that only 32.1 percent of corporate DC pension eligible female workers were enrolled in a DC plan in 2004, while 75.2 percent of DC eligible men were in the same year.[8] This finding indicates that over two-thirds of DC eligible women opted out of the DC plan and kept the less beneficial DB alternatives.

The gender gap may partially be attributed to female employees lagging behind men with regard to DC-related knowledge.[9] Luchak and Gunderson (2000) find that the

---

[6] However, conditions require that an individual must be employed by a firm for at least 3 years. Moreover, the individual may not receive allowances out of one's DC savings before he or she reaches the age of 60.

[7] More precisely, the Defined Benefit Corporate Annuity Law was enacted, followed by the Defined Contribution Corporate Annuity Law, which came into effect in October 2001 and April 2002, respectively.

[8] These numbers do not represent the employees who made a complete switch from a DB pension to a DC plan. Presumably, the majority holds a mixture of both plans with DB pension as the primary coverage. However, there exist no data available to substantiate the DB/DC pension coverage shares at an individual level. At an employers' level, a survey conducted by the Pension Fund Association (2006) finds that 39.2 percent of DC implementing firms in Japan offer solely DC plan and 60.8 percent offer a DC plan in combination with other DB alternatives. Ippolito and Thompson (2000) find that the complete termination of DB pensions in favor of DC plans is a rare event for US firms.

[9] Mitchell (1988) using the 1983 Survey of Consumer Finance finds that women are better informed than men along several pension dimensions in the US. More recently, however, a study by Transamerica Center for Retirement Studies (2007) finds that full-time female workers tend to fall behind men with respect to retirement savings, confidence, information and knowledge. One could also attribute the male-female differential to the availability of a DC plan at their current job. Smaller firms are less likely to provide corporate-sponsored retirement benefits due to relatively higher administrative costs. However, if an employer does not offer a DC pension or provides no corporate-sponsored retirement plans at all, then the new pension laws allow Japanese workers to enroll individually in a DC plan available at private financial institutions (i.e., banks, insurance companies). The new DC pension laws also permit self-employed workers to set aside their partial earnings into an individual DC pension account at these financial institutions. The individual-based DC enrollment, of course, hinges on whether employees are knowledgeable about the availability of these services offered by the financial institutions.

overall level of pension knowledge is high among those for whom the knowledge matters most in terms of their behavioral decision making. Table 2 provides a detailed description of gender gap in DC knowledge by employees' corporate pension eligibility status, calculated with our sample data. The top panel shows that only a handful (15.7%) of the pension-eligible women possessed simple knowledge of DC pensions in 2002, while twice (31.6%) the similar male sample did. Including workers with very limited information of DC pensions who responded "only heard of the name," 52.8 percent of the eligible female workers and 75.0 percent of the male workers possessed some knowledge of DC pensions. Overall, nearly one-half (47.2%) 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.

[Table 2]

Lack of corporate pension eligibility status greatly affects the amount of DC information obtained by full-time employees. The results in the second and third panels in Table 2 show that the portion of employees knowledgeable about DC pensions is smaller among the ineligible employees (20.7%) relative to the eligible sample (26.7%), and even smaller (10.9%) for the workers employed at firms with no corporate-sponsored retirement benefits. Significant evidence of the male-female knowledge gap is obtained with a difference of 15.9 points (31.6% of male employees and 15.7% of female employees responding affirmatively to the DC knowledge question) for the eligible sample and with a difference of 18.3 points (28.6% men vs. 10.3% women) for the ineligible sample. The gender disparity in DC knowledge is the

smallest for employees with no available corporate-sponsored pension benefits, with a difference of only 3.8 points (12.3% men vs. 8.5% women) which shows no statistical significance. The DC knowledge gap is far more serious among employees in private pension-providing companies than for those employed at firms with no such benefits.

It is recognizable with no doubt that inferior DC knowledge would place women at a disadvantage relative to men when making an optimal choice among alternative pension 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.[10] 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. One would naturally assume that various DC advantages, e.g., portability and tax benefit, as well as disadvantages, e.g., investment risk, have equal impacts on the demand for DC pensions across genders. Accurate understanding of whether this assumption holds is critical for devising a new pension scheme which presents an equal saving opportunity for both male and female workers.[11]

---

[10] One may also attribute the enrollment gap to the employer discrimination against female employees as contributions to corporate retirement savings in Japan are typically made solely by employers, and not individual employees. As demonstrated in Table 1, a larger fraction of full-time female employees are ineligible for corporate pension benefits than male employees. However, the focus of this paper is placed on the "preferences" for DC pensions, and the analysis is conducted with a prospective view of individual workers without employer's bias. As explained in footnote 8, the new pension laws allow the Japanese workers to enroll voluntarily in a DC plan available at private financial institutions in the case that their employer does not offer a DC pension or provide no corporate-sponsored retirement plans at all.

[11] The fact that the Japanese government has announced the termination of *Tekikaku Taishoku Nenkin*, one of the most popular corporate DB retirement programs, as of March 2012 also increases the relative importance of DC pension alternative.

Table 3 compares the employee perceptions of various DC characteristics as well as the preferences for DC pensions by gender. The first set of columns ("Response = 1") demonstrates that both male and female employees hold similar perceptions with regard to many DC characteristics. For example, similar percentages of men (26.7%) and women (25.3%) responded affirmatively to "Being able to view own account balance any time" as an important DC merit.[12] "Provide the opportunity to think about a long-term life plan" is also equally perceived as a merit of DC pensions by both male (13.5%) and female (12.4%) employees. Moreover, similar percentages of men (37.7%) and women (42.3%) consider "Require knowledge of finance and investment commodities" as a burden of a typical DC plan. Men (36.6%) and women (40.5%) also similarly perceive "Account balance may greatly decrease if managed poorly" as an unfavorable characteristic. Relatively large and significant gender disparities are found on DC specific characteristics of "Being able to receive retirement allowances even with short tenure" (13.2 points) and "Being able to carry over the benefit as one changes a job" (5.0 points), with higher fractions of women favoring these features. Women are less likely than men to consider "Account balance may greatly increase if managed properly" as a merit. Nevertheless, most DC characteristics are similarly acknowledged by male and female employees with no statistically significant gender

[12] For all the survey respondents, regardless of the level of their prior DC knowledge, the questionnaire described the specific merits and demerits of a DC plan. The questionnaire then asked "Of the following DC features, which would you consider the merits of a DC pension?" and allowed respondents to circle the items such as "Being able to carry over the benefit as one changes a job" and "Being able to view own account balance any time" if they agree. If a respondent circled the item, the response was entered as 1 and 0 otherwise. Similarly, the questionnaire asked "Of the following DC features, which would you consider the demerits of a DC plan?" and listed items such as "Require knowledge of finance and investment commodities" and "Account balance may greatly decrease if managed poorly."

disparities.

[Table 3]

If similarly perceived DC characteristics have a direct and equivalent impact on individual preferences for DC pensions between male and female employees, the resulting DC participation gap would be negligibly small. The second set of results ("Prefer DC | Response = 1") in Table 3 shows that the preferences toward DC pensions in response to each characteristic vary significantly across genders. Only 20.4 percent of women favored a DC plan over DB alternatives while 31.9 percent of men did so among the samples who responded affirmatively to the portability benefit. "Being able to view own account balances any time," though equally perceived as an important advantage by both genders, does not have an equivalent impact on the DC choice, with only 17.0 percent of women relative to 34.2 percent of men preferring a DC plan. Women (14.0%) consider "Account balance may greatly decrease if managed poorly" even more of a disadvantage than men (25.2%) when choosing a DC plan. Overall, nearly 20 percent of male employees were in favor of DC pensions over DB alternatives, while 12 percent of female employees favored DC plans (as shown in Table 1). Women tend to opt out of a DC plan even though they recognize both the advantages and disadvantages of the scheme similarly to their male counterparts. These results suggest a caveat that individuals' responses to perceptional questionnaires may widely differ from their actual choice of behaviors. Based on the findings, four hypotheses are stated in the next section on the observed gender differences in DC preferences.

3. Hypotheses

There are several rationales possible to explain the observed patterns of varying DC preferences. First, a DC plan is typically characterized by front-loaded tax incentives; that is, the contributions are deductible from 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:

> H_1: 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. This is particularly the case for full-time female employees who are already covered

with corporate-sponsored DB benefits. Thus, we predict a negative portability effect on DC preferences, particularly for corporate pension eligible female employees rather than the ineligible workers. Our second hypothesis states:

> H_2: 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. (Bennetts 2007, 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. Thus, the third hypothesis is:

> H_3: Women are less likely than men to proactively manage their retirement savings hampered by the so called "*Prince Charming Syndrome*," contributing to the gender disparity in DC choice.

Finally, women might be innately less tolerant than men toward investment risks and uncertainties. There is much evidence that men and women have different

attitudes toward risk, with men tending toward riskier preferences than women (Karabenick and Addy 1979; Sorrentino et al. 1992, and Zinkhan and Karande 1991, Bajtelsmit and VanDerhei 1997, Hinz et al. 1997). Stanny (2007) refers to a study of 4,200 women conducted by the National Center for Women and Retirement Research which finds that the fear of failure and the unknown, far more than lack of knowledge, are the greatest obstacles to women's financial success in the U.S. If men are bolder 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:

> H_4: 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.

Accurate understanding of the causal effects of the aforementioned factors is imperative for devising a new pension scheme which equally provides a post-retirement savings opportunity for both men and women. This paper attempts to shed light on the yet-unstudied gender disparity in the determinants of DC pension choice.[13] 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. I explore whether the descriptive results in Table 3, which mimic the nature of probit analysis, remain unchanged once individual demographics are controlled. I then divide the current sample into the groups of corporate pension

[13] Some exceptions are Hintz, et al. (1997) and Bajtelsmit and VanDerhei (1997), which study gender difference in retirement portfolios from the viewpoint of individual risk aversion for US workers. No similar studies are found in Japan.

eligible employees and ineligible employees, and apply the same multivariate analysis to examine the existence of any gender gap within each group. Before proceeding to the empirical results, the estimation framework and some technical issues are described in the next section.

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

$$I_i = constant + \sum_{j=1}^{k} \beta_j factor_{ij} + \delta_1 age_i + \delta_2 marital_i + \delta_3 education_i + \delta_4 tenure_i + \delta_5 occupation_i + \delta_6 union_i + \delta_7 \log salary_i + \delta_8 \%depend_i + \delta_9 eligibility_i + \varepsilon_i \quad (1)$$

where I_i is a binary index variable for DC preferences; the value of which equals 1 if an individual prefers DC plan to DB alternatives and 0 otherwise. The first set of covariates $\sum_j^k factor_{ij}$ represents the individual i's factorized perceptions of DC characteristics. More precisely, for the explanatory 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 as presented in Table 3. 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. The rationale for factor analyzing the directly measured variables is that some of the questions may share common dimensions, which is *a priori* difficult to judge for a researcher (Thompson 2004). The composite scores calculated based on the obtained

pattern coefficients are used as the explanatory variables which represent the factorized perceptions of typical DC characteristics.[14]

Other explanatory variables controlled in the estimations are dummy variables for worker's age, marital status, educational attainment, occupation, union status, and corporate pension eligibility, as well as continuous variables for tenure, log-salary, and $\%depend$ indicating individual's prediction on the proportion of corporate pension as a post-retirement income source, and ε_i is a standard normally distributed disturbance term. The probit model (1) is estimated separately for both male and female samples. I also estimate the following model (2), using a pooled regression with interactions between the respondent's gender and the factorized DC perception variables:

$$I_i = \sum_{j=1}^{k} \beta_j factor_{ij} + \sum_{j=1}^{k} \phi_j (female_i) \times (factor_{ij}) + X_i \Gamma + \varepsilon_i \qquad (2)$$

where the second term is the set of interactions with coefficients ϕ_j, and X_i is a vector of individual i's demographic controls which includes the constant term with a corresponding coefficient vector Γ. Thus, the hypothesis testing on the gender difference in individual coefficients $\hat{\beta}_j^m = \hat{\beta}_j^f$ involves testing for the significance in the coefficients of the interaction terms $\hat{\phi}_j$ in the pooled probit estimation.

Empirical Results

As the first step, the directly measured binary responses to various DC

[14] The underlying constructs are extracted using the principle components method with varimax rotation, and the factor scores are computed using the regression method.

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 4. 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 pension plans. 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 estimations as the perception variables to test the hypotheses described in the previous section.

[Table 4]

The probit estimation results of individual DC preferences are presented in Table 5.[15] Consistent with our intuition, 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 that, without controlling employee demographics, the recognition of the tax advantage does not significantly affect individual DC preferences for both genders (Specification 1). The pooled regression coefficient on tax benefit interacted with the female dummy allows us to conduct the

[15] Please refer to the appendix table for the full presentation of the probit estimation result with all the demographic controls.

test against Hypothesis 1. The result shows insignificant gender difference (t-statistic = .91), 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-statistic = -1.20). Therefore, no statistically reliable evidence that supports the second hypothesis on the DC portability was found. The efficacy of the portability merit is not a significant source of the gender gap in DC enrollment rates.

Thirdly, the self manageability of a DC account portfolio is a positive and significant determinant of DC preferences for both men and women, with men's marginal effect being greater than that of women's. The pooled regression estimate on the self manageability score interacted with the gender dummy shows that the female effect is significantly lower than the male effect (t-statistic = -1.76). 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 on 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 an insignificant result (t-statistic = -.20), 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.

[Table 5]

The qualitative argument of the first specification remains unchanged after controlling the individual worker characteristics. A noteworthy improvement in the second specification is that the tax advantage shows a significantly positive effect for female employees. The result indicates that female respondents with higher perceptions of the tax benefit react more sensitively in favor of DC pensions than male counterparts. However, no significant male-female difference is found (t-statistic = 1.11) with respect to tax benefit. A robust result is obtained for the gender difference in the marginal effects of self manageability (t-statistic = -1.86). Again, the finding suggests that women with a higher factor score on the perception of self-manageability, i.e., women agreeing with the "self-manageability" features as important DC merits, are less likely than similar men to favor DC pensions in response to that feature, supporting our argument of the *Prince Charming Syndrome.*

Corporate Pension Eligibility

Our finding is consistent with the argument of the *Prince Charming Syndrome* pervading among Japanese women employed in small- to medium-sized private firms. A previous government finding, however, indicates a significant gender gap in DC

enrollment rates among employees who are eligible for a DC pension benefit (Ministry of Health, Labour and Welfare 2005). This implies that many Japanese women voluntarily opt out of a DC plan and hold on to the less beneficial DB alternatives. The male-female gap in DC preferences could be more prominent for employees with corporate-sponsored pension coverage than the non-covered workers, due to the relatively higher values of DB "indenture premium" posted by female workers. This is a testable hypothesis using the technique applied thus far. Moreover, the amendment of the Japanese pension laws provide a new retirement savings opportunity for workers with no corporate pension coverage by permitting them to voluntarily participate in a DC plan offered at financial institutions, such as banks and insurance firms. Therefore, our interest also falls onto whether the non-covered male and female workers would equally take advantage of a new DC plan. Ideally, the DC pension features motivate both men and women with no corporate-sponsored retirement coverage to build their own investment portfolio which meets their future retirement needs. We now turn our attention to examining the association between corporate pension eligibility status and the gender disparity in DC preferences.

Our estimation result indicates the non-covered female employees having positive but insignificant preferences for DC pensions, compared with fully-covered female employees as a reference group.[16] For men, while ineligible employees show negative DC preferences, those employed at firms with no corporate-sponsored retirement benefits show positive preferences, neither of them being insignificant. Table 6

[16] Please refer to Appendix table. "Non-covered" sample includes full-time employees who are ineligible for corporate pension benefits as well as workers whose employers offer no corporate-sponsored retirement savings programs at all.

presents the probit estimation result of the five factorized features as determinants of DC preferences, for the separate samples of corporate-sponsored pension covered and non-covered employees. A significant gender difference is obtained on tax benefit for corporate pension-covered employees, with male employees showing a negative coefficient while female employees producing positive and significant preferences for DC plans. The pooled result indicates that the effect of tax benefit on DC preferences is significantly greater for full-covered women than the similar male counterparts (t-statistic = 2.80). The finding reveals an opposite result from the one posited in the first hypothesis, suggesting that the DC tax advantage would reduce the observed gender gap in DC enrollment rates for corporate pension-covered employees. No similar evidence is found for non-covered sample.

Fully-covered men and women with higher recognition of portability as a positive DC attribute are likely to prefer DC plans to DB alternatives. However, the marginal effect for female employees is significantly lower (t-statistic = -2.30) than that of male employees, contributing to the gender gap generation. The result supports the argument of the reduced efficacy of DC portability for women due to relatively higher values of DB indenture premium posted by them. Thus, the second hypothesis on DC portability is accepted for this group of sample. However, no similar evidence was obtained for the non-covered sample.

Intuitively consistent signs and magnitudes are obtained on the marginal effects of "self manageability," "investment risk," and "costs" for both pension covered and non-covered employees. The DC feature of "self manageability" shows a positive effect, while "investment risk" and "costs" show negative effects on DC preferences.

Male-female differences in the marginal effects generally suggest that the disparity in DC preferences may be generated in response to differentiated efficacies of DC pension attributes across gender. However, these results, particularly on the coefficient of "self manageability" or the *Prince Charming Syndrome*, lack the statistical significance with these smaller sizes of separated sub-samples.

[Table 6]

Conclusion

A portable individual retirement account is considered critical as Japan's workforce becomes increasingly dynamic. Defined contribution pension 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 savings 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 particularly among corporate pension-covered employees than for employees with no coverage. It is obvious that dissemination of retirement pension knowledge is imperative for female workers to fully enjoy their career as well as post-retirement life.

Other than the DC-related knowledge disparity, important findings provided by

this study are: even for individuals revealing similar perceptions of the DC merits and demerits, men and women have different preferences for DC pensions, suggesting that their perceptional responses in questionnaires may widely differ from their actual behavior. Of various DC features, tax advantage is far more favored by corporate pension-covered female employees than the male counterparts, contributing to the reduction of the gender gap in DC enrollment. For the fully-covered employees, the efficacy of DC portability is a significant gap generating factor, due perhaps to relatively highly valued DB indenture premium for women compared to men. Finally, a multivariate analysis result provides robust evidence of the *Prince Charming Syndrome*, plaguing the female workforce as a significant source of gender gap in DC enrollment rates in Japan. 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 working women.

References

Bajtelsmit, Vickie L., and Jack L. VanDerhei. 1997. "Risk Aversion and Pension Investment Choices." In Michael S. Gordon, Olivia S. Mitchell and Marc M. Twinney, ed., Positioning Pensions for the Twenty-first Century, pp. 45-65. Philadelphia: University of Pennsylvania Press.

Bajtelsmit, Vickie L., and Nancy A. Jianakoplos. 2000. "Women and Pensions: A Decade of Progress?" EBRI Issue Brief, 227 (November).

Barber, Brad M., and Terrance Odean. 2001. "Boys will be Boys: Gender, Overconfidence, and Common Stock Investment." Quarterly Journal of Economics, Vol. 116, No. 1 (February), pp. 261-292.

Barsky, Robert B., F. Thomas Juster, Miles S. Kimball, and Matthew D. Shapiro. 1997. "Preference Parameters and Behavioral Heterogeneity: An Experimental Approach in the Health and Retirement Study." Quarterly Journal of Economics,

Vol. 112, No. 2 (May), pp. 537-579.
Bennetts, Leslie. 2007. The Feminine Mistake: Are We Giving Up Too Much? Dallas: Voice Publishing.
Even, William E., and David A. Macpherson. 1990. "The Gender Gap in Pensions and Wages." The Review of Economics and Statistics, Vol. 72, No. 2 (May), pp. 259-265.
_____. 1994. Gender Differences in Pensions. Journal of Human Resources, Vol.29, No.2 (Spring), pp. 555-587.
_____. 2000. "The Changing Distribution of Pension Coverage." Industrial Relations, Vol. 39, No.2 (April), pp. 199-227.
_____. 2004. "When Will the Gender Gap in Retirement Income Narrow?" Southern Economic Journal, Vol. 71, No. 1 (July), pp. 182-200.
Gustman, Alan L., and Thomas L. Steinmeier. 2004. "What People Don't Know about Their Pensions and Social Security." In William G. Gale, John B. Shoven and Mark J. Warshawsky, ed., Private Pensions and Public Policies. Washington, DC: The Brookings Institution.
Hinz, Richard P., David D McCarthy, and John A. Turner. 1997. "Are Women Conservative Investors?: Gender Differences in Participant-Directed Pension Investments." In Michael S. Gordon, Olivia S. Mitchell and Marc M. Twinney, ed., Positioning Pensions for the Twenty-first Century, pp. 91-103. Philadelphia: University of Pennsylvania Press.
Ippolito, Richard A. 1997. Pension Plans and Employee Performance: Evidence, Analysis, and Policy. Chicago: The University of Chicago Press.
Ippolito, Richard A, and John W. Thompson. 2000. "The Survival Rate of Defined-Benefit Plans." Industrial Relations, Vol. 39, No. 2 (April), pp. 228-245.
Japan Business Federation. 2006. The Current Labor Economy in Japan.
Johnston, Lori. 2008. "The Prince and the Pension." Pink Magazine, March-April, pp. 61-64.
Kakutei Kyoshutsu Nenkin Kyōiku Kyōkai. 2004. "Kigyō-gata Kakutei Kyoshutsu Nenkin no Kanyūsha Jittai Chōsa." December 14. (http://www.mhlw.go.jp/topics/bukyoku/nenkin/nenkin/kyoshutsu/toushi/reference3.html).
Karabenick, Stuart A., and Milton M. Addy. 1979. "Locus of Control and Sex Differences in Skill and Chance Risk-taking Conditions." Journal of General Psychology. Vol.100, pp.215-228.

Kigyō Nenkin Rengō-kai. 2006. “Kakutei Kyoshutu Nenkin ni Kansuru Jittai Chōsa Gaiyō.” October 6.

Luchak, Andrew A., and Morley Gunderson. 2000. “What Do Employees Know About Their Pension Plan?” Industrial Relations, Vol. 39, No. 4 (October), pp. 646-670.

Maki Dean M. 2004. “Financial Education and Private Pensions in Private Pensions and Public Policies.” In William G. Gale, John B. Shoven and Mark J. Warshawsky, ed., Private Pensions and Public Policies. Washington, DC: The Brookings Institution.

Ministry of Health, Labour and Welfare. 2001. “Josei no Life Style no Henka-tou ni Taiō Shita Nenkin no Arikata ni Kansuru Kentōkai Hōkokusho.”

Ministry of Health, Labour and Welfare. 2004. “Kōsei Rōdō Shō Tōkei-hyō Database System, Heisei 16-nen Koyō Dōkō Chōsa.” (http://wwwdbtk.mhlw.go.jp/toukei/kouhyo/indexkr_14_6.html)

Ministry of Health, Labour and Welfare. 2005. “Kakutei Kyoshutsu Nenkin Kankei no Heisei 16-nen Jisseki ni Tsuite.” November 25, (http://www.mhlw.go.jp/shingi/2005/11/s1125-15d.html).

Mitchell, Olivia S. 1988. “Worker Knowledge of Pension Provisions.” Journal of Labor Economics, Vol.6, No. 1 (January), pp. 21-39.

Muto, Yasuaki, and Mari Ishizuka. 2002. “The Integrated Management of the Retirement Benefit Plan and Personnel Costs.” Journal of Mitsubishi Research Institute, Vol. 40, pp. 112-130.

Poterba, James M., and David A. Wise. 1999. “Personal Retirement Accounts and Personal Choice.” In David A. Wise, ed., Personal Saving, Personal Choice, pp. 11-41. Stanford: Hoover Institution Press.

Sorrentino, Richard M., Erin C. Hewitt, and Patricia A. Raso-Knott. 1992. “Risk-taking in Games of Chance and Skill: Information and Affective Influences on Choice Behavior.” Journal of Personality and Social Psychology, Vol.62, pp.522-533.

Stanny, Barbara. 2007. Prince Charming Isn’t Coming: How Women Get Smart About Money. New York: Penguin Books.

Thompson, Bruce. 2004. Exploratory and Confirmatory Factor Analysis: Understanding Concepts and Applications. Washington, DC: American Psychological Association.

Transamerica Center for Retirement Studies. 2007. “Women’s Retirement Security in Jeopardy.” Eighth Annual Transamerica Retirement Survey, September.

Zinkhan, George M., and Kiran W. Karande. 1991. “Cultural and Gender Differences in Risk-taking Behavior Among American and Spanish Decision Makers.” Journal of Social Psychology, Vol.131, pp.741-742.

Table 1. Summary statistics of selected and full samples

Variable	Selected sample			Full sample		
	Men	Women	Sig.	Men	Women	Sig.
Annual salary (x ¥10,000)	535.6	352.3	***	531.9	346.1	***
	(220.9)	(220.7)		(219.8)	(205.0)	
Age (%):						
18-29 years old	15.0	33.3	***	16.6	35.2	***
30-39 years old	36.0	29.0	**	33.7	28.2	**
40-49 years old	27.5	18.1	***	27.5	16.9	***
50-70 years old	21.5	19.7		22.2	19.7	
Tenure (months)	151.7	112.0	***	150.2	108.9	***
	(111.9)	(91.5)		(113.5)	(91.4)	
Expected proportion of corporate pension as retirement income source	.156	.161		.156	.155	
	(.149)	(.151)		(.153)	(.155)	
Marital status (%):						
Married	72.2	33.3	***	69.6	30.3	***
Widowed/separated	2.3	10.9	***	2.3	10.5	***
Single	25.5	55.9	***	27.3	58.4	***
Unknown	---	---		0.8	0.8	
Education (%):						
Junior high school	---	---		2.6	0.6	***
High school	30.1	40.3	***	27.1	40.6	***
2-year college	3.1	26.5	***	2.8	26.0	***
4-year college/university	55.2	24.0	***	54.1	21.6	***
Technical college	11.6	9.3		11.5	9.7	***
Other	---	---		0.4	0.6	
Unknown	---	---		1.4	0.8	
Occupation (%):						
Manager	26.4	3.2	***	25.5	3.2	***
Clerical	35.7	84.8	***	35.0	84.6	***
Sales, technical and others	37.9	12.0	***	38.4	11.5	***
Unknown	---	---		1.0	0.6	
Union membership (%):						
Member	18.4	14.7	*	16.7	14.4	
Non-member	13.7	8.6	***	14.2	7.9	***
Union nonexistent	68.0	76.7	***	64.2	73.2	***
Unknown	---	---		5.0	4.4	
Corporate pension eligibility (%):						
Eligible	67.6	60.4	***	65.8	56.3	***
Ineligible	8.6	13.1	***	8.0	11.4	**
Unavailable	23.8	26.5		23.5	27.0	*
Unknown	---	---		2.6	5.2	***
DB/DC preference (%):						
Prefer DC over DB plan	19.6	11.8	***	18.7	12.0	***
Otherwise†	80.4	88.2	**	81.3	88.0	**
Sample size	899	442		1,171	630	

Source: Survey on Employer Sponsored Fringe Benefits 2002, Japan Institute of Life Insurance.
Note: The numbers in parentheses are standard deviations. Male- female difference is: *statistically significant at the .10 level; **at the .05 level; ***at the .01 level. † includes "Not sure."

Table 2. Percentages of male and female employees with DC knowledge

	Do you know what defined contribution pensions are?				
	% Yes (1)	% Only heard of the name (2)	% Don't know at all	(1) + (2)	Valid N
Private pension eligible:	26.7	41.5	31.8	68.2	875
Men	***31.6***	**43.4**	***25.0***	***75.0***	608
Women	***15.7***	**37.1**	***47.2***	***52.8***	267
Private pension ineligible:	20.7	39.3	40.0	60.0	135
Men	***28.6***	**45.5**	***26.0***	***74.1***	77
Women	***10.3***	**31.0**	***58.6***	***41.3***	58
Private pension unavailable:	10.9	32.0	57.1	42.9	331
Men	12.3	32.3	55.5	44.6	220
Women	8.5	31.6	59.8	40.1	111

Source: Survey on Employer Sponsored Fringe Benefits 2002, Japan Institute of Life Insurance.
Note: The numbers in bold indicates a statistically significant male-female difference at the .10 level; the numbers in bold and italic indicates a significant difference at the .01 level.

Table 3. Employee perceptions of DC characteristics and preferences

DC characteristic (Agree = 1, Disagree = 0)	Response = 1 (Agree)			Prefer DC | Response = 1 (Agree)		
	Men (1)	Women (2)	Diff. (2)-(1)	Men (3)	Women (4)	Diff. (4)-(3)
Being able to carry over the benefit as one changes a job	32.8%	37.8%	***5.0*** *	31.9%	20.4%	***-11.5*** ***
Being able to view own account balance any time	26.7	25.3	-1.4	34.2	17.0	***-17.2*** ***
Being able to manage own retirement assets	17.7	14.5	-3.2	44.7	26.6	***-18.1*** **
Account balance may greatly increase if managed properly	22.2	17.4	***-4.8*** **	39.0	23.4	***-15.6*** **
Being able to receive retirement allowances even with short tenure	18.2	31.4	***13.2*** ***	26.2	17.3	***-8.9*** *
Tax exempt contributions	16.0	19.0	3.0	30.6	20.2	***-10.4*** *
Tax exempt profits	13.0	15.4	2.4	66.7	22.1	***-44.6*** ***
Being able to acquire asset management and investment knowledge	11.8	9.1	-2.7	37.7	16.7	***-21.0*** *
Provide the opportunity to think about a long-term life plan	13.5	12.4	-1.1	40.5	21.8	***-18.7*** *
Require knowledge of finance and investment commodities	37.7	42.3	4.6	25.7	11.2	***-14.5*** ***
Account balance may greatly decrease if managed poorly	36.6	40.5	3.9	25.2	14.0	***-11.2*** ***
Unstable life planning due to uncertain pension allowances	5.1	4.1	-1.0	34.8	11.1	***-23.7*** *
Insufficient tax exemption for contributions	30.9	31.2	.3	18.0	12.3	-5.7
Various transaction costs	14.2	15.8	1.6	27.3	17.1	-10.2

Source: Survey on Employer Sponsored Fringe Benefits 2002, Japan Institute of Life Insurance.
Note: Male-female difference is: *statistically significant at the .10 level; **at the .05 level; ***at the .01 level.

Table 4. Estimated pattern coefficients on the characteristics of DC pensions

	Advantages			Disadvantages	
Responses to DC characteristics	Factor I	Factor II	Factor III	Factor IV	Factor V
Tax exempt contributions	***.634***	.198	.087		
Tax exempt profits	***.620***	.096	.180		
Being able to carry over the benefit as one changes a job	.245	***.453***	.072		
Being able to view own account balance any time	.270	***.444***	.176		
Being able to receive retirement allowances even with short tenure	.269	***.365***	.011		
Being able to manage own retirement assets	.156	.131	***.403***		
Account balance may greatly increase if managed properly	.241	.096	***.390***		
Being able to acquire asset management and investment knowledge	.163	.057	***.513***		
Provide the opportunity to think about a long-term life plan	.163	.108	***.384***		
Require knowledge of financial and investment commodities				***.428***	.070
Account balance may greatly decrease if managed poorly				***.508***	.226
Unstable life planning due to uncertain pension allowances				***.438***	.153
Insufficient tax exemption for contributions				.177	***.309***
Various transaction costs				.302	***.339***
Factor interpretation	Tax benefit	Portability	Self manageability	Investment risk	Costs

Source: Survey on Employer Sponsored Fringe Benefits 2002, Japan Institute of Life Insurance.
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.

Table 5. Bivariate probit estimation of DC preferences for male and female full-time workers

Variable	Specification 1			Specification 2			Specification 3		
	Men (1)	Women (2)	(1)=(2) (t-stat)	Men (3)	Women (4)	(3)=(4) (t-stat)	Men (5)	Women (6)	(5)=(6) (t-stat)
Factor I (tax benefit)	.007	.127	.91	.009	.155 *	1.11	.008	.162 *	1.15
	(.070)	(.092)		(.070)	(.093)		(.070)	(.092)	
	[.002]	[.022]		[.002]	[.026]		[.002]	[.027]	
Factor II (portability)	.511 ***	.475 ***	-1.20	.514 ***	.465 ***	-.69	.513 ***	.461 ***	-.69
	(.077)	(.115)		(.080)	(.118)		(.080)	(.118)	
	[.129]	[.083]		[.124]	[.078]		[.124]	[.076]	
Factor III (self manageability)	.527 ***	.333 ***	***-1.76***	.556 ***	.346 ***	***-1.86***	.556 ***	.353 ***	***-1.86***
	(.066)	(.118)		(.071)	(.120)		(.071)	(.122)	
	[.133]	[.058]		[.134]	[.058]		[.134]	[.059]	
Factor IV (investment risk)	-.218 **	-.279 **	-.20	-.225 **	-.286 *	-.44	-.222 **	-.280 *	-.45
	(.086)	(.140)		(.091)	(.150)		(.091)	(.150)	
	[-.055]	[-.049]		[-.054]	[-.048]		[-.053]	[-.046]	
Factor V (costs)	-.082	-.074	.20	-.083	-.083	.11	-.082	-.060	.12
	(.093)	(.126)		(.094)	(.134)		(.095)	(.135)	
	[-.021]	[-.013]		[-.020]	[-.014]		[-.020]	[-.010]	
Demographic controls	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Corporate pension eligibility	No	No	No	No	No	No	Yes	Yes	Yes
Log-likelihood	-384.8	-145.5	-535.4	-368.9	-142.8	-521.9	-368.9	-142.0	-.521.5
Pseudo R^2	.134	.091	.124	.170	.108	.146	.170	.113	.147
Sample size	899	442	1,341	899	442	1,341	899	442	1,341

Source: Survey on Employer Sponsored Fringe Benefits 2002, Japan Institute of Life Insurance.
Note: The numbers in parentheses are robust standard errors, and the numbers in brackets are the marginal effects. Other variables included in specification 2 estimation are dummy variables for age, marital status, education, occupation, and union status, and continuous variables for tenure, log(salary), %pension dependency. Specification 3 includes all the covariates in specification 2 and the dummy variables for corporate pension eligibility.
*statistically significant at the .10 level; **at the .05 level; ***at the .01 level. The t-statistics indicate a pair-wise significance test for gender differences.

Table 6. Bivariate probit estimation of DC preferences for male and female full-time workers, by corporate pension eligibility status

Variable	Corporate pension covered					Corporate pension non-covered†				
	Men (1)		Women (2)		(1)=(2) (t-stat)	Men (3)		Women (4)		(3)=(4) (t-stat)
Factor I (tax benefit)	-.067		.360	***	***2.80***	.133		-.196		-1.41
	(.083)		(.126)			(.136)		(.163)		
	[-.015]		[.043]			[.034]		[-.029]		
Factor II (portability)	.622	***	.303	*	***-2.30***	.302	**	.732	***	1.54
	(.098)		(.170)			(.138)		(.214)		
	[.143]		[.036]			[.077]		[.109]		
Factor III (self manageability)	.570	***	.533	***	-1.15	.545	***	.275		-.89
	(.086)		(.148)			(.128)		(.274)		
	[.131]		[.064]			[.141]		[.041]		
Factor IV (investment risk)	-.278	***	-.516	***	-1.02	-.006		-.090		-.27
	(.106)		(.182)			(.185)		(.263)		
	[-.064]		[-.062]			[-.002]		[-.013]		
Factor V (costs)	-.127		-.076		.46	-.121		-.042		-.02
	(.108)		(.157)			(.193)		(.295)		
	[-.029]		[-.009]			[-.031]		[-.006]		
Demographic controls	Yes		Yes		Yes	Yes		Yes		Yes
Log-likelihood	-242.3		-71.9		-322.0	-115.8		-57.6		-179.8
Pseudo R^2	.190		.198		.184	.183		.176		.171
Sample size	608		267		875	291		175		466

Source: Survey on Employer Sponsored Fringe Benefits 2002, Japan Institute of Life Insurance.
Note: The numbers in parentheses are robust standard errors, and the numbers in brackets are the marginal effects. *statistically significant at the .10 level; **at the .05 level; ***at the .01 level. The t-statistics indicate a pair-wise significance test for gender differences. † includes employees who are ineligible for corporate-sponsored pensions and those whose employer offers no private retirement benefits.

Appendix table. Bivariate probit estimation of DC preferences

Variable	Specification 1		Specification 2		Specification 3	
	Men (1)	Women (2)	Men (3)	Women (4)	Men (5)	Women (6)
DC characteristic factors:						
Factor I (tax benefit)	.007	.127	.009	.155 *	.008	.162 *
	(.070)	(.092)	(.070)	(.093)	(.070)	(.092)
Factor II (portability)	.511 ***	.475 ***	.514 ***	.465 ***	.513 ***	.461 ***
	(.077)	(.115)	(.080)	(.118)	(.080)	(.118)
Factor III (self manageability)	.527 ***	.333 ***	.556 ***	.346 ***	.556 ***	.353 ***
	(.066)	(.118)	(.071)	(.120)	(.071)	(.122)
Factor IV (investment risk)	-.218 **	-.279 **	-.225 **	-.286 *	-.222 **	-.280 *
	(.086)	(.140)	(.091)	(.150)	(.091)	(.150)
Factor V (costs)	-.082	-.074	-.083	-.083	-.082	-.060
	(.093)	(.126)	(.094)	(.134)	(.095)	(.135)
Age:						
18 – 29 years old (omitted)			---	---	---	---
30 – 39 years old			.002	-.121	-.005	-.093
			(.158)	(.231)	(.157)	(.230)
40 – 49 years old			-.149	.075	-.151	.113
			(.182)	(.263)	(.182)	(.263)
50 – 70 years old			.031	.150	.030	.181
			(.205)	(.307)	(.206)	(.310)
Marital status:						
Married (omitted)			---	---	---	---
Widowed/separated			-1.131 *	.200	-1.123 *	.185
			(.643)	(.277)	(.641)	(.280)
Single			.055	.060	.059	.047
			(.135)	(.210)	(.134)	(.211)
Education:						
High school (omitted) (includes JHS)			---	---	---	---
2-year college			-.451	.037	-.444	.056
			(.440)	(.223)	(.438)	(.223)
4-year college and above			.427 ***	-.058	.430 ***	-.054
			(.134)	(.232)	(.134)	(.235)
Technical college			.281	-.026	.277	-.061
			(.193)	(.331)	(.193)	(.334)
Tenure (in months)			-.001	-.002 *	-.001	-.002
			(.001)	(.001)	(.001)	(.001)

Occupation:						
Manager (omitted)			---	---	---	---
Clerical			-.020	.327	-.019	.349
			(.150)	(.518)	(.151)	(.549)
Sales, technical and others			-.064	.199	-.066	.194
			(.154)	(.556)	(.154)	(.583)
Union membership:						
Union member (omitted)			---	---	---	---
Non-union member			-.041	.117	-.045	.105
			(.196)	(.363)	(.196)	(.364)
Union nonexistent			-.006	.029	.-013	-.004
			(.143)	(.258)	(.144)	(.264)
Log of annual salary			.124	.206	.128	.212
			(.116)	(.179)	(.115)	(.184)
% Private pension dependency			-.007	-.002	-.007 *	-.002
			(.004)	(.006)	(.004)	(.006)
Pension eligibility status:						
Pension eligible (omitted)					---	---
Pension ineligible					-.027	.167
					(.179)	(.264)
Pension available					.037	.248
					(.137)	(194)
Constant	-.967 ***	-1.287	-1.748 **	-2.638 **	-1.778 **	-2.794 **
	(.052)	(.085)	(.734)	(1.203)	(.733)	(1.248)
Log-likelihood	-384.8	-145.5	-368.9	-142.8	-368.9	-142.0
Pseudo R^2	.134	.091	.170	.108	.170	.113
Sample size	899	442	899	442	899	442

Source: Survey on Employer Sponsored Fringe Benefits 2002, Japan Institute of Life Insurance.
Note: The numbers in parentheses are robust standard errors. *statistically significant at the .10 level; **at the .05 level; ***at the .01 level. The t-statistics indicate a pair-wise significance test for gender differences.