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Occupational Pension Plans, Group Registered Retirement Savings Plans, and Employee Quit Transitions

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One of the concerns largely ignored by the occupational pension reform movement across Canada is the fact that defined-benefit (DB) pension plans generally—and particularly the most common of such plans, the final-average earnings plans—allow both plan members and employer sponsors to reduce certain risks they face in the employment relationship. Therefore, deferred compensation can be used by the employers as a strategic human resource management tool in the areas of reducing certain unwanted employee behaviors such as shirking and turnover, as well as facilitating desirable retirement decisions and human resource planning (Allen and Clark 1985; Ippolito 1987, 1994; Mitchell 1988; Gunderson and Pesando 1988; Lazear 1990; Gustman, Mitchell, and Steinmeier 1994; and Dorsey 1995). Employees make a long-term commitment and performance guarantee in exchange for a pension linked to their final pay at retirement and an implicit guarantee of employment security until that time. The final-earnings pension plan plays an important role in this arrangement by imposing a loss in the form of for-

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feited or forgone benefits for employees who leave the organization too early (whether through termination or resignation).

Although theoretically appealing, this implicit pension contract hypothesis does not remain unchallenged. Recent studies conducted by Gustman and Steinmeter (1993, 1994) suggest that quit rates are lower in all pension firms, even those with defined-contribution (DC) plans. Unlike DB plans, DC plans and group registered retirement savings plans (RRSPs) impose no cost on those who leave the organizations prior to their contractual commitment. These findings open the questions if, why, and how pensions and other deferred retirement savings plans (such as group RRSPs) reduce quitting and increase commitment.

This study, making use of the 1999 and 2000 waves of the unique Workplace and Employee Survey (WES) that links employer and employee information, enables one to distinguish the effects of alternative mechanisms of deferred compensation on employee-initiated separations while controlling for various personal, human capital, job, and firm characteristics (in addition to industry and firm size, such as business strategy and human resource practices) that are believed to affect quits.

This study will enable examination of many interesting questions revolving around the pension as a risk-sharing device, such as how expected pension losses and labor market sorting influence turnover decisions. This would be the first time that issues of this nature were examined by using a nationally representative Canadian data base. As such, it will help shed light on whether the changing features of retirement savings vehicles would compromise other potential benefits, such as the potential role they play as devices for increasing labor productivity.

The positive relationships between occupational pension plans and employee commitment have been well documented, if underappreciated, in the literature (Luchak 2001). To date, most research focuses on turnover and retirement. Employee turnover—in particular, voluntary separation initiated by the discontent employees—can be very costly to the employers, because of not only high hiring and training costs, but also the possible disruption to the operation of current business. Do occupational pension plans and group RRSPs reduce quits? If so, what are the major mechanisms through which this occurs? The research that has been done does not adequately compare experiences under different types of plans (e.g., defined benefit (DB) plans, defined contribution (DC) plans, and group registered retirement savings plans or RRSPs). This paper, using the first two waves of the Workplace and Employee Survey (WES), looks at a strong indicator of employee commitment, the quitting behavior that is believed to be associated with pension plans and group RRSPs.

Two Major Private Retirement Savings Programs in Canada

The two major private retirement savings vehicles in Canada today are occupational pension plans and RRSPs (including both individual and group plans), which covered for 41 percent and 50 percent of paid workers in 1999, respectively (Statistics Canada 2001). According to the Pension Plans in Canada Survey, at the end of 2001 about 5.5 million employees—representing 40 percent of all employees, including those in the public sector—had a pension plan in their job. This percentage was down from 45 percent in 1991. In 2001, of all establishments in the private sector, 14 percent of workplaces provided pension coverage to at least part of their workforce. About 17 percent of establishments offered group RRSPs to at least some of their workers. In such firms, about 1.6 million employees—representing 14 percent of the private-sector workforce—reported having a group RRSP (Morissette and Zhang 2004).

Although both plans offer a tax-assisted method for accumulating retirement savings, they are structured in very different ways. The most common pension plans in Canada, representing more than 85 percent of all plan members in the country, provides a defined benefit that defers increasingly larger amounts of employees' retirement savings until later in their careers, creating well-known incentives for long job tenure and alternative retirement choices.

The group RRSPs, on the other hand, differ from occupational pension plans—and, most commonly, the DB plans—in two ways. First, group RRSPs are subject to less regulatory burden in that only the Income Tax Act applies, not pension standards legislation. In addition to shifting the investment risk to the employees, this is one of the major reasons why smaller firms cannot afford an employer-sponsored savings plan; if they can, those programs are most likely to be DC or group RRSPs. Second, unlike DB plans, group RRSPs have no apparent economic incentive effects, providing a fairly constant rate of return to the employees whether they work for one organization or another. In other words, the choice of an employee to quit or retire is not connected with a penalty of forgone retirement wealth under a RRSP as it is under a DB plan. In addition, there is no vesting requirement under group RRSPs as opposed to pension plans. Vesting refers to the right of terminating employees to receive a benefit and/or refund of their employer's contributions, which can be used as an employee retention tool. In 1998, most provinces have two-year vesting standards. New Brunswick, Alberta, and British Columbia have five-year requirement. Unfortunately, it was not possible to control for vesting period in this analysis because provincial indicator is not available in the WES.

Economic incentives of DB plans have been a subject of considerable research interest. The expected loss in pension wealth becomes the cornerstone of economic analysis of pensions generally and the productivity view of pensions in particular. Over the past decade, while RRSPs have exhibited tremendous growth, DB plans have been in decline (Table 1). The decline of defined-benefit plans and growth in more flexible savings plans in other countries such as the United States has been equally, if not even more, pronounced, spurring interest in the labor market implications of these trends (Ippolito 1995). Although the trends toward greater portability under the RRSPs in Canada would increase retirement savings for increasingly more mobile workers, the reduced incentives for longer tenure may have negative productivity consequences. In particular, incentives for reduced quits and layoffs, increased expenditures on training and development, and incentives for greater work effort and labor-management cooperation might be compromised, affecting the wealth base of society more generally.

Alternative Hypotheses and Empirical Evidence

There are three competing hypotheses in the literature that intend to explain the relationship between employer-sponsored retirement savings plans and employee quitting behaviors (Table 2).

The implicit contract theory has provided some explanation for the underlined relations between pensions/RRSPs and quits. Under such contracts, private pensions may help employers enforce long-term employment relationships by imposing a penalty on those who quit prematurely (Allen and Clark 1986; Ippolito 1987, 1994; Mitchell 1988; Lazear 1990; Gustman, Mitchell, and Steinmeier 1994; and Dorsey 1995). That is to say, workers sacrifice potential higher wages elsewhere in exchange for “stay” pension but are awarded a lower “quit” pension if they depart prematurely, thereby placing a high cost on quitting (Ippolito 2002). This theory applies only to DB plans but not to DC plans and RRSPs.

In addition, the large quit costs may trigger a selection effect. A DB plan attracts “stayer” while repelling “quitters” (market sorting I). Allen, Clark, and McDermed (1993) suggest that a combination of selection and marginal quit costs helps explain the employee quitting behaviors in the firms with DB plans.

Gustman et al. (1993, 1994), however, find evidence that is not so easily interpreted by the implicit contract theory or labor market sorting I. The authors have shown that quit rates are lower in all pension firms, even those with DC plans. Unlike DB plans, DC plans and group RRSPs impose no cost on those who leave the organizations prior to their contractual commitments. These findings open the questions whether, why, and how pensions and other

TABLE 1
Occupational Pension Plan Membership by Sector and Type, 1986–2001

	All Plans Members (thousands)	Defined Benefit Members (thousands)	Defined Benefit (% of members)
Both Sectors			
1986	4,668	4,296	92.0
1988	4,845	4,430	91.4
1990	5,109	4,634	90.7
1992	5,318	4,776	89.8
1994	5,215	4,645	89.1
1996	5,150	4,535	88.1
1998	5,088	4,373	85.9
1999	5,091	4,347	85.4
2000	5,268	4,456	84.6
2001	5,432	4,570	84.1
Public Sector			
1986	2,086	2,043	97.9
1988	2,172	2,120	97.6
1990	2,266	2,212	97.6
1992	2,555	2,464	96.4
1994	2,556	2,445	95.7
1996	2,476	2,364	95.5
1998	2,396	2,276	95.0
1999	2,364	2,238	94.7
2000	2,430	2,294	94.4
2001	2,482	2,333	94.0
Private Sector			
1986	2,582	2,252	87.2
1988	2,673	2,310	86.4
1990	2,844	2,422	85.2
1992	2,764	2,312	83.6
1994	2,658	2,199	82.7
1996	2,673	2,172	81.3
1998	2,692	2,096	77.9
1999	2,728	2,109	77.3
2000	2,838	2,162	76.2
2001	2,950	2,237	75.8

Note: Most new plans and amendments to existing plans become effective on January 1, but information on contributions and membership is generally provided as of the plan's year-end (which is most often December 31 of the previous year).

Source: Pension Plans in Canada Survey, Statistics Canada, 1986–2001.

TABLE 2
 Alternative Hypotheses of Relationships between Pension/Group
 RRSP and Employee Quits

Hypotheses	Pension	Group RRSP	Both Plans
Implicit Contract	(-)	No effect	(-)
Market Sorting I	Stayer (-)	Leaver (+)	Ambiguous
Market Sorting II	Saver (-): Both high and low discounters stay	Ambiguous: high discounters quit; low discounters stay	Saver (-): both high and low discounters stay
Overall Expected Impact	(-)	(Ambiguous)	(-)

Note: Plus sign (+) denotes positive relationship, and minus sign (-) denotes negative relationship.

deferred retirement savings plans (such as group RRSPs) reduce quits and increase commitment.

The argument was substantiated by a model of *Information Asymmetry of Hiring*, which applies to both DB and DC/RRSPs. Ippolito (2002) suggests that both DB and DC plans can enhance productivity by attracting a higher quality workforce. Workers with higher saving propensity (thus, higher expected productivity) would select themselves into the firms that offer a pension plan, or a group RRSP, or both. By extension, although the high discounters who are hired into the RRSP or DC firms mistakenly would quit, both low discounters and high discounters would stay in DB firms because of the expected pension capital losses.

If the above alternative explanations of the pension/RRSP effect on quits hold true, one would expect pension plans and both plans (e.g., pension plans and RRSPs) to have a negative impact on quitting. RRSPs may yield ambiguous or insignificant impacts. These hypotheses can be tested by the WES data.

This report utilizes this unique feature of the first Canadian employer-employee linked data to estimate the effect of pension and group RRSPs on workers' quit transitions. The data and methodology facilitate four main contributions to the empirical literature:

1. It separates layoffs from quits, contrary to most previous studies.
2. It represents the first Canadian evidence on the relative function of deferred compensation in terms of quit reduction under different type of retirement savings arrangement (a private pension plan, a group

RRSPs, and a hybrid plan—a combination of a private pension and a group RRSP).

3. It takes into account the consistency of worker and employee responses to pension and group RRSP coverage, something has not been done in pension research, to the best of my knowledge.
4. It controls for establishment-specific fixed effects, thus controlling for various unobserved firm-specific effects believed to affect employee quits, such management style and management quality.

Methodology Issues

Data

One reason for inadequate research in the area of pension/RRSP and quit relationships has been the lack of data. This is particularly the case for the information on voluntary and involuntary separations, on both pension and group RRSP coverage, and on firm characteristics (in addition to industry and firm size) that are believed to affect quits, such as business strategy and human resource practices. This study, making use of the 1999 and 2000 WES, enables one to distinguish the effects of alternative mechanisms of deferred compensation on employee-initiated separations.

The WES is Statistics Canada's first major survey undertaking that links both the supply (employee) and demand (employer) sides of the labor market. There are 23,540 employees surveyed in 1999 within 5,733 establishments. The WES not only contains detailed demographics and labor market information on individual workers, but also provides information on various workplace characteristics, business strategy, and innovative human resource practices. The exiter survey offers accurate information on both voluntary separations (e.g., quits) and involuntary separations (e.g., layoffs and discharges). Pension and other benefit questions were asked on both employer and employee levels, making it possible to cross-examine the reliability of both pension and group RRSP coverage. Furthermore, the unique firm identifiers make it possible to further control for firm-specific fixed effects.

Quits

Unspecified or composite measures of job changes or separations do not distinguish among the reasons for exit from the firm, which may be voluntary or involuntary. Many studies combine employee-initiated behaviors, such as quit or retirement, as well as employer-initiated behaviours, such as layoff or discharge, into simple measure of turnover. This makes it difficult to determine the employees' responsiveness to pensions or other deferred compensation incentives.

The exiter survey of the WES provides not only the information on employee separations, but also various reasons why employees left the organizations. Thus, the WES allows construction of a more reliable measure of employee quits. The first exit question, Q11 (FLOWTYPE) asked whether an employee stayed with the firm or separated from the firm in the second year of the survey (2000); Q12 (XLEFTJOB) then asked those who separated from the firm whether the job came to an end (layoff or discharge) or he/she left the job (quit) or both. The final exit question, Q13 (XREALEFT), further asked why the employees left the jobs.

These detailed probing questions permit one to separate voluntary resignation (quit) from involuntary separation (layoff) and exclude those individuals who left the organization for reasons other than direct dissatisfaction with the job, such as retirement and caring for children, and so on. Thus, the WES provides, to the best of the author's knowledge, the most accurate and reliable information on employee-initiated separation (quit) in response to certain characteristics of the jobs (e.g., wages and benefits) or the firms (e.g., management quality).

Pension and Group RRSP Coverage

In previous studies, an inconsistency problem between employee and employer responses on pension/group RRSP coverage has been largely ignored. There is considerable evidence in the literature that the knowledge of many employees about their coverage and features of pension/RRSPs can be very limited (Luchak and Gunderson 2000). Because the WES has information on pension/RRSPs from both employee and employer sides, it facilitates a cross-check of the accuracy of the coverage statement from both employer and employee responses. It appears that the source information from the employers is more reliable on nonwage benefits because the questions were answered by the human resource managers in larger firms and general managers in the smaller firms and that most employers make contributions to the employee benefit plans. Therefore, this information from employers will be used if there is a conflict response from having and offering a pension/RRSP. As shown in Table 3, the differences are quite substantial for hybrid plans and no plan categories after the correction was made.

Firm Fixed Effects and Workplace Practices

Previous studies on pension incentives used employee survey data or personnel data files for only one establishment. They are either not able to control for firm-specific effects other than industry and firm size or draw inference for the economy as a whole. Other firm fixed effects (such as management quality

TABLE 3
 Pension, RRSP and Both Plan Coverage before
 and after Employer-Employee Cross-Check (n = 19,253)

	Employee Responses Not Cross-Checked against Employer Responses	Employee Responses Cross-Checked against Employer Responses
Pension Only	29.8	28.4
RRSP Only	6.1	6.5
Both Plans	13.4	7.0
No Plans	50.7	58.1

Source: Workplace and Employee Survey, 1999.

and the adoption of alternative workplace practices such as incentive pay, classroom or on-the-job training, self-directed teams) may also influence employee-initiated separations (Morrisette and Rosa 2002; Batt, Colvin, and Keefe 2002).

Departing from previous studies, this study set to examine the effect of deferred compensation (pensions or/and RRSPs) on quits while controlling for various individual, human capital, job, and firm characteristics other than industry and firm size. A firm-specific-effect model will also be implemented to control for both observed and unobserved firm-specific effects in the estimation of pension/RRSP impact on quits, given that WES has a unique identifier for each of the sampled workplaces.

There is, however, a methodological complication with regard to the panel length for the logit or probit model with fixed effects. The random-effects methods assume that the individual unobserved characteristics are uncorrelated with the error terms, which are inappropriate for the model. This provides more weight on the fixed-effect estimators that rely directly on the linking nature of the WES data. In essence, this study compares the differences in quits between the employees with and without a retirement savings plan (pension plan, group RRSP, or both—a hybrid plan) within the same workplace. The fixed-effect estimator applied to nonlinear models, however, is known to be biased in short panels (Chamberlain 1980). Thus, the important issue here is whether the WES data used here can offer enough panel length to yield estimators with confidence. As suggested by Heckman (1979) and Katz (2001), estimates for both coefficients and standard errors from the LOGIT fixed effects models are likely to be inconsistent under a short panel (fewer than eight); however, the average panel length of

the final employee sample is four (average of four employees per location). In addition, Morissette (2002), also using WES data, has revealed that conditional estimates of job rotations on quits have substantially over estimated the negative impact. Thus, more weight should be placed on unconditional linear probability model for the firm-specific-effects estimates.

Employee Quitting Behavior and Deferred Compensation: Econometric Analysis

In this analysis, quit is a measure of voluntary resignation (workers left firm in the second year of the survey). It excludes involuntary separation (job came to an end) because it is not clear whether the workers who were laid off are subject to the same probability of quitting (if they had not been laid off) as those who stayed with the employer in the second year.

Of the 23,540 individual observations in the employee sample of 1999 WES, 3,373 were lost because of nonresponse or firm bankruptcy in 2000. Another 549 workers were removed from the sample because of layoffs. An additional 365 who left for other reasons were also excluded. Finally, the sample was restricted to firms that had at least two employees who were surveyed in 1999 to facilitate the implementation of the fixed-effects model; 849 observations were dropped due to these restrictions, yielding a final sample of 18,404 employees. Descriptive statistics for the dependent variable and the three independent pension/RRSP variables by workplace size are reported in Table 4.

Unfortunately, the WES does not differentiate between DB and DC plans; however, because the majority (85 percent) of paid workers covered pension plans are under DB plans (Statistics Canada 2001), pension coverage provided a proxy for DB plan coverage, particularly for large firms. On the other hand, group RRSP is a DC type of plan, providing a measure close to the DC plans. Therefore, the three dummies (pension plan only, or PENSION ONLY, group

TABLE 4
Descriptive Statistics for Main Variables of Interests (%)

Firm Size	All Firms (2+ employees)	Small Firms (2–100 employees)	Large Firms (100+ employees)
Sample size	18,404	10,029	8,375
Quit Probability	10.2	13.6	5.7
Pension Only	28.4	12.1	49.8
RRSP Only	6.5	7.5	5.2
Hybrid Plans	7.0	3.2	11.9

Source: Workplace and Employee Survey, 1999–2000.

RRSP only, or RRSP ONLY, and both plans, or HYBRID) do allow one to examine plans with known differences in the economic incentive effects by types of retirement savings plans.

Our empirical strategy is based on the methodology of utilizing longitudinal data to compare quit probabilities between individual employees who have a plan (a pension plan, a group RRSP, or both—a hybrid plan) and those who do not have a plan.

$$\Pr(Q_{ijt} = 1) = f(\alpha_1 \text{PENSION}_{it-1} + \alpha_2 \text{RRSP}_{it-1} + \alpha_3 \text{HYBRID}_{it-1} + \beta X_{it-1} + \gamma Z_{ijt-1} + u_{it}), [1]$$

where $Q_{ijt} = 1$ if individual i from firm j quit in 2000; 0 otherwise. $\text{PENSION}_{it-1} = 1$ if individual i is covered by a pension plan only in 1999; 0 otherwise. Similarly, RRSP_{it-1} and HYBRID_{it-1} are coded as 1 if individual i is covered by a group RRSP or both plans in 1999, 0 otherwise. X_{it-1} is a vector of controls for observable characteristics for individual i in 1999, Z_{ijt-1} is a vector of controls for observable characteristics for firm j of individual i in 1999, and u_{it} is a residual.

The three dummy variables (PENSION ONLY, RRSP ONLY, and HYBRID) capture the effects of each of the three types of retirement savings plan on the quit probability of individual worker i in firm j . If pensions or/and RRSPs are associated with lower quits as predicted by the implicit contract or/and the selection model, then the estimates of α should be negative.

It can be argued that workers may stay with the firm because of a “good employer” not because of deferred compensation. A complementary logistic model with firm fixed effects is also estimated to control for both observed firm fixed effects such as workplace practices and unobserved fixed effects such as management quality believed to have some impact on employee work behaviors such as quits. In this model, a set of firm dummies (F_{it-1}) are used to substitute for a vector of controls for observable firm characteristics (Z_{ijt-1}) in model (1).

$$\Pr(Q_{ijt} = 1) = f(\alpha_1^{\circ} \text{PENSION}_{it-1} + \alpha_2^{\circ} \text{RRSP}_{it-1} + \alpha_3^{\circ} \text{HYBRID}_{it-1} + \beta^{\circ} X_{it-1} + \gamma^{\circ} F_{it-1} + u_{it}). [2]$$

Results are based on a logistic regression model (LOGIT) and linear probability model (LPM), with and without fixed effects of a dichotomous dependent quit variable on three dummy independent variables representing whether the employee is covered by a pension plan only, a group RRSP only, or both plans. The LOGIT/LPM model controls for various characteristics believed to influence employee quitting behavior: personal characteris-

tics such as age, gender, marital status, dependent children; human capital characteristics such as time at immigration, job-education match/mismatch, educational attainment, foreign language at home; job characteristics such as union/collective agreement coverage, hourly wage, years of labor market experience, part-time status, and occupation; firm characteristics such as region, industry, firm size, foreign ownership, and not-for-profit organization; various workplace practices such as individual incentives, group incentives, other incentives, use of teams, use of technology, training, flexible management, flexible employment, and flexible hours. The fixed-effect model only controls for individual and job characteristics because it essentially estimates the average differences in quitting probabilities between those pension/RRSP covered workers and those who are not covered within the same workplace.

Major Findings

In the logit models, all regression coefficients for dummy independent variables have been converted to marginal changes in probabilities from a unit change in the explanatory variables evaluated at the mean of the dependent variable. Following Gunderson, Kervin, and Reid (1986) procedure, the marginal changes of individual quit probability associated with a unit change of the three independent dummy variables are calculated by the formula (3):

$$(2) \quad \Delta P_i = [1 + \exp(-x'b - b_i)]^{-1} - P,$$

where ΔP_i is the change in probability of a quit occurring associated with a unit change in the explanatory variable, X_{it-1} (i.e., $\Delta X_{it-1} = 1$), and where b_i is the estimated logit coefficient associated with the variable X_{it-1} , P is the mean of the dependent variable Q_{it} .

All t statistics reported in Table 5 are based on LOGIT/LPM coefficients and related variance estimates that have been adjusted for the complex survey design of the WES by applying the bootstrap weights.

For the final sample of workers, two of three main variables of interest, PENSION ONLY and HYBRID, clearly indicate that quit probability declines as the coverage of either of these two plans discourage employee-initiated separations. The strongest and most robust effect occurs for HYBRID to which both implicit contract and selection models apply. Employees covered by both plans are 5.7 percent (4.8 percent for LPM) less likely to quit (even stronger for fixed-effects LPM at 6.6 percent) than no-plan workers with mean quit probability of 10.2 percent. Those who are covered by a pension plan only have 5.1 percent (3.9 percent for LPM) lower quit probability (3.5

percent for fixed-effects LPM) than those who have no plans at all. The significance level of the coefficients usually drops in the fixed-effect model. This is not surprising though, in light of the fact that 4,544 degrees of freedom were lost after controlling for the firm fixed effects. For group RRSPs, the effect on quits is positive (1.3 percent for logit model, 0.9 percent for LPM) but statistically insignificant. The fixed-effects model has shown similar results (1.4 percent).

For the purpose of sensitivity analysis, results are also reported for the models using pension coverage, group RRSP coverage, and hybrid plan coverage without cross-checks between employer-employee responses (Table 6). The effects of pension coverage and hybrid plan coverage on employee quits are similar to those estimates in Table 5, except for those of the group RRSP coverage, which become negative although remain statistically insignificant.

Further Results

An important question that can be raised in Table 5 is whether the hybrid variable captures the effects of a pension plan, RRSP, or both. Are the PENSION ONLY and HYBRID coefficients significantly different from each other? If not, then the hybrid coefficients likely just capture the pension effects. To test this hypothesis, PENSION PLAN was substituted for NO PLAN as the reference category. The results show that there is no significant difference in the effects on quits between the hybrid plans and pension plans

TABLE 5

Marginal Effect of Pensions, RRSPs, and Hybrids on Probability of Quit (*t* Statistics in Parenthesis), with Corrections for Mismatch between Employer-Employee Responses

	Linear Probability Model (LPM)	LOGIT Model	LPM Fixed Effect Model
Sample size	18,404	18,404	18,404
Quit Probability (Mean Dependent Variable)	0.102	0.102	0.102
No Plan			
Pension Only	0.039*** (-2.63)	0.051*** (-3.18)	-0.035* (-1.73)
RRSP Only	0.009 (0.18)	0.013 (0.30)	0.014 (0.27)
Hybrid	-0.048*** (-2.61)	-0.057*** (-2.64)	-0.066** (-2.26)

Note: ***, ** and * denote statistical significance at 1%, 5% and 10%, respectively. The control variables are discussed in the next section given in Table 2.8 and 2.9.

Data source: Workplace and Employee Survey, 1999–2000.

TABLE 6
 Marginal Effect of Pensions, RRSPs, and Hybrids on Probability of Quits
 (t Statistics in Parenthesis), without Corrections for Mismatch
 between Employer-Employee Responses

	Linear Probability Model (LPM)	LOGIT Model	LPM Fixed-Effect Model
Sample size	18,404	18,404	18,404
Quit Probability (Mean Dependent Variable)	0.102	0.102	0.102
No Plan			
Pension Only	-0.043*** (-2.54)	-0.043*** (-2.72)	-0.020 (-1.16)
RRSP Only	-0.012 (-0.25)	-0.007 (-0.15)	-0.012 (-0.27)
Hybrid	-0.061*** (-3.61)	-0.063*** (-4.07)	-0.050** (-2.45)

Note: ***, ** and * denote statistical significance at 1%, 5% and 10%, respectively.

Data source: Workplace and Employee Survey, 1999–2000

as indicated by the HYBRID coefficient with PENSION ONLY as omitted reference. As an alternative estimation strategy, a different set of variable coding was constructed as follows: PENSION ALL = 1 for everyone who has pension coverage (including those who also have an RRSP), RRSP ALL = 1 for everyone who has RRSP coverage (including those who have traditional pension coverage), and the interaction term. The interaction terms provides a clear test for whether the hybrid plans matter above and beyond each individual plan. The results are reported in Table 7. Again, the coefficient for interaction term is not statistically significant, suggesting that most of the effect of a hybrid plan on quits may come from a pension plan.

Impact of Control Variables and Workplace Practices

The complete results for three models (with corrected pension and group RRSP coverage) are reported in Table 8. For simplicity, other findings from the logit model without firm fixed effects are discussed. In one area that recently attracts considerable attention, the variables featuring workplaces practices do have some influence on employee quits and these results are generally in line with the literature.

Although most of the effects of other control variables are in the anticipated directions, only some are significant. As expected, age has a significant and negative effect on quits. Male workers are more likely to quit than their

TABLE 7
 Marginal Effect of Pensions, RRSPs, and Their Interaction Terms on Quits
 (*t* Statistics in Parenthesis), with Corrections for Mismatch
 between Employer-Employee Responses

	Linear Probability Model (LPM)	LOGIT Model	LPM Fixed Effect Model
Sample size	18,404	18,404	18,404
Quit Probability (Mean Dependent Variable)	0.102	0.102	0.102
No Plan			
Pension All	-0.039*** (-2.63)	-0.051*** (-3.18)	-0.035* (-1.73)
RRSP All	0.009 (0.18)	0.013 (0.30)	0.014 (0.27)
Pension × RRSP	-0.017 (-0.38)	-0.022 (-0.50)	-0.045 (-0.89)

Note: ***, ** and * denote statistical significance at 1%, 5% and 10%, respectively.

female counterparts. The difference, however, is not statistically significant. Marital status does not have a significant impact on quits when other factors are accounted for. Having dependent children tends to reduce quits, although the impact is not significant. The only immigration variable that shows a strong (and positive) effect is the 1990 immigration cohort (IMM90S). Foreign language at home may be an indicator of certain language barriers in the labor market and thus significantly limits workers' mobility. It is not surprising that overqualified individuals are more likely to quit. Individuals who possess more than college education also have a higher propensity to quit, largely because their general training from schools is widely appreciated by employers and thus opens up more opportunities.

As expected, labor market experience is associated with lower quits. Although managerial, professional, technical, and marketing workers are more likely than production workers to quit, clerical workers are less likely to do so. Individuals in larger firms (with more than 500 employees) have a lower quit probability than those in the smaller firm (with fewer than twenty employees). Not-for-profit organizations and foreign ownership tend to increase employee quits.

As anticipated, cost reduction or control type of human resource practices such as individual incentives, flexible management, and flexible employment increase employees' probability of quitting were found, although the coefficients are not significant at conventional levels.

TABLE 8
 Linear Probability Model (LPM), LOGIT Model, and Firm Fixed Effects
 Model of Quit Transitions (*t* statistics in Parenthesis, *n* = 18,404), with Corrections
 for Mismatch between Employer-Employee Responses

Variable	LPM		LOGIT		Firm Fixed Effects LPM	
	Coefficient	<i>t</i> Value	Marginal Effect	<i>t</i> Value	Coefficient	<i>t</i> Value
No Pension or Group RRSP						
Pension Plan Only	-0.039	-2.63	-0.051	-3.18	-0.035	-1.73
Group RRSP Only	0.009	0.18	0.013	0.30	0.014	0.27
Hybrid Plan	-0.048	-2.61	-0.057	-2.64	-0.066	-2.26
Age	-0.004	-4.40	-0.004	-3.94	-0.001	-1.52
Male	0.015	0.90	0.016	0.85	0.015	0.96
Married	-0.003	-0.19	0.001	0.08	-0.007	-0.52
Presence of Children	-0.017	-1.18	-0.009	-0.55	-0.007	-0.56
Immigrant Variables						
Canadian-Born						
Immigrant before 1970s	-0.006	-0.32	-0.011	-0.35	-0.011	-0.61
Immigrant in the 1970s	-0.011	-0.45	-0.015	-0.47	-0.016	-0.61
Immigrants in the 1980s	-0.044	-1.44	-0.045	-1.52	-0.032	-1.21
Immigrants in the 1990s	0.063	1.20	0.087	1.71	0.031	0.64
Foreign Language at Home	-0.037	-1.69	-0.043	-1.86	-0.039	-1.64
Education Variables						
Education-Job Matched						
Under-qualified	0.018	0.93	0.022	0.81	0.022	1.17
Over-qualified	0.018	0.93	0.018	0.76	0.003	0.14
Did Not Complete						
High School						
High School Diploma	0.046	1.74	0.068	2.04	0.029	1.46
Some Postsecondary Education	0.002	0.08	0.016	0.51	-0.006	-0.25
Trade Certificate	0.024	0.33	0.026	0.78	0.007	0.34
College Certificate	0.013	0.45	0.030	0.79	0.003	0.11
University Degree	0.031	1.01	0.064	1.51	0.027	1.09
Professional Degree	0.030	0.50	0.051	0.41	0.028	0.52
Graduate Degree	0.052	1.19	0.106	1.48	0.058	1.60
Other Education Attainment	0.014	0.31	0.036	0.64	0.010	0.27

TABLE 8 CONT.

Linear Probability Model (LPM), LOGIT Model, and Firm Fixed Effects Model of Quit Transitions (*t* statistics in Parenthesis, *n* = 18,404), with Corrections for Mismatch between Employer-Employee Responses

Variable	LPM		LOGIT		Firm Fixed Effects LPM	
	Coefficient	<i>t</i> Value	Marginal Effect	<i>t</i> Value	Coefficient	<i>t</i> Value
Occupation Variables						
[Production Workers]						
Managers	0.022	0.65	0.059	1.25	0.019	0.43
Professionals	0.024	0.77	0.054	1.13	0.003	0.08
Technical	0.032	1.32	0.066	1.78	0.028	1.07
Clerical	-0.044	-0.99	-0.012	-0.34	-0.026	-0.44
Marketing/Sales	0.029	1.12	0.067	1.73	0.028	1.10
Years of Full-time Experience	-0.001	-0.52	-0.000	-0.02	-0.004	-2.05
Experience Squared	0.000	0.86	-0.000	-0.04	0.0001	2.28
Part-time	0.052	1.47	0.056	1.64	0.044	1.17
Logarithm of Hourly Wage	-0.022	-1.28	-0.020	-1.14	-0.013	-0.53
Union/Collective Bargaining Coverage	-0.051	-3.88	-0.055	-4.21	-0.003	-0.25
Firm Size Variables						
[Fewer than 20 Employees]						
20-49 Employees	0.042	1.34	0.040	1.41	—	—
50-499 Employees	0.000	0.00	0.003	0.12	—	—
500 or More Employees	-0.017	-0.75	-0.035	-1.74	—	—
Foreign Ownership	0.025	2.23	0.038	2.56	—	—
Nonprofit Organization	0.031	1.91	0.045	1.84	—	—
Workplace Practice Variables						
Incentive Variables						
Individual Incentives	0.053	1.78	0.046	1.87	—	—
Group Incentives	-0.008	-0.39	-0.007	-0.32	—	—
Other Incentives	-0.012	-0.58	-0.010	0.50	—	—
Teams	-0.001	-0.03	-0.001	-0.05	—	—
Use of Technology	-0.001	-1.54	-0.001	-1.50	—	—
Training	-0.023	-2.00	-0.024	-2.30	—	—
Organizational Flexibility Variables						
Flexible Management	0.012	0.64	0.018	0.94	—	—

TABLE 8 CONT.
 Linear Probability Model (LPM), LOGIT Model, and Firm Fixed Effects
 Model of Quit Transitions (*t* statistics in Parenthesis, *n* = 18,404), with Corrections
 for Mismatch between Employer-Employee Responses

Variable	LPM		LOGIT		Firm Fixed Effects LPM	
	Coefficient	<i>t</i> Value	Marginal Effect	<i>t</i> Value	Coefficient	<i>t</i> Value
Flexible Employment	0.006	0.43	0.004	0.25	—	
Flexible Hours	-0.006	-0.41	-0.008	-0.58	—	
Industry Dummies	Yes	Yes	No			
Region Dummies	Yes	Yes	No			
Firm Dummies	No	No	Yes			

Notes: Excluded reference group in square brackets; firm variables were dropped out in the firm fixed effects linear probability model (LPM).

Data source: Workplace and Employee Survey, 1999–2000.

On the other hand, high commitment/high involvement practices such as union/collective agreement coverage and training are associated with a significantly lower probability of voluntary separation. Wage is also found to reduce quits, but the effect is not statistically significant. As opposed to individual incentives, group incentives have negative but insignificant impact on quits.

Summary and Conclusions

Do pension and RRSPs reduce quits? The answer is yes for PENSION ONLY and HYBRID. The impact of RRSPs on quits is statistically insignificant and quantitatively small. The strongest and most robust impact occurs for both plans (HYBRID), implying pensions and RRSPs work better to deter quits if combined. These findings suggest that the implicit contract theory and expected pension loss are still the major mechanism; however, the labor market sorting, in particular, the saver argument, may also be at work, especially in the case when workers are covered by group RRSPs and hybrid plans. At the best, RRSPs are not an effective tool to combat employee-initiated separations.

The results may also help explain the impact of long-term trends in pension and group RRSP coverage. In light of the fact that economic incentives under DB plans may have a coercive side and are possibly viewed as unfair (e.g., in cases of employee mobility, lack of pension knowledge), it raises the

question of whether the development of psychological bonds is a preferred vehicle for realizing productivity gains through long-term employment contracts. Integration of the literature on “commitment” versus “control” human resource systems can help uncover this issue. That “high-commitment/high involvement” human resource practices reduce quits (e.g., union/collective agreement coverage, training, group incentives) was not found, whereas cost-reduction or control type of HR policies (e.g., individual incentives, flexible management, and flexible employment) tend to increase quits, although most are not statistically significant. In view of the strong productivity effect of PENSION and HYBRID through quit reduction, it appears that the rapid growth of the RRSPs and slight decline of the occupational pension plans since early 1990s is more likely to be driven by tax policy changes, regulatory changes, and structural shifts in the Canadian economy.

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